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NOTICE

THE EDITOR invites medical and dental staff to send in original papers on professional subjects travel personal experiences and other matters Items of news and matters of interest to the naval medical service will be welcomed from ships and establishments on home and foreign stations Notices of births marriages and deaths are inserted free of charge to subscribers

Articles and communications may be sent at any time to **The Editor, Journal of the Royal Naval Medical Service, Institute of Naval Medicine, Alverstoke, Hants, PO12 2DL** Two copies should be submitted in typescript Double spacing should be used throughout

References — the name of the author and the date of publication are given in the text thus Smith (1935) believed this to be due etc or lack of basic information on the strategic fundamentals of the science of the sea (Carlson 1956) The list of authors quoted is put at the end of the article in alphabetical order Each reference in the list should give in order the author s name initials the year of publication (in brackets) the title of the paper the name of the journal *in full* the volume and the number of the first and last pages For books the place of publication should be stated and the publisher s name

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By courtesy of RNAS Culdrose

A Sea King helicopter answers a distress call from a Spanish trawler 140 miles south west of RNAS Culdrose. A crewman had sustained serious leg injuries when a line snapped on deck and medical officer [illegible] is being winched onto the helicopter for the journey to Truro Hospital, Truro.

Editorial

It is pleasing to report that our subscribers continue to increase, but sadly not our contributors on the active list. Much of the work of medical naval officers is "buried" in the specialist journals of the medical press and in future we will publish more summaries of their work appearing in that way if only to record it in the JRNMS. But general articles on personal and medical experiences are of interest to our subscribers on the retired list, the reserve, our civil consultants and all those who value their connections past or present with our Service sufficiently to subscribe. Our wide official circulation in medical circles at home and abroad has now been extended to include all Naval Flag Officers.

At the moment our Service is beset with day to day problems indeed we seem to be blinkered by them to the exclusion of proposing new methods of deploying our expertise. Most recognise within our Service, that we need structural changes in our conditions of service and our organisation. It is sad to see the waste of scarce expertise. But these are merely irritating and transitory difficulties and the outlook is good. Perhaps our scientific and professional attitude survey will establish the facts necessary to persuade the unconvinced of the way ahead and assist the Medical Department in their difficult task of planning and implementing the changes that most think are needed.

We all have emotive if not practical and personal links with the sea and the sea people we serve. The oceans are a good model where long term currents achieve more and wider effects than even the most dramatic and eye catching surface wave pattern — though the odd storm is not without its local drama which may post its problems. The long term current throughout the history of our Service has always been towards increased professionalism. The current slowed with the influx in the 1920's and was followed by the doldrums of the 1930's to rise in the 1940's with pre war volunteers and the dedicated RNVR at sea and in the extended auxiliary naval hospitals. There were great advances in professionalism in the 1960's though mainly in the hospitals and hospital specialities. The 1970's have been confused by specious economy exercises and real personnel shortages but the 1980's could see consolidation of the advances of the 1960's and their extension to the non hospital specialties — and that would include the generalities of primary care at the sharp end in general practice, and in occupational medicine.

Despite technical advances in weaponry we cannot write out the man. Indeed there is an increased need for environmental and human factors research to utilise to the full the skills of the complex man required to operate and direct complex systems. One needed to be tough and free from the ruptures of scurvy avitaminosis to work a muzzle loading 32 pounder. One needs nous and physical and mental stamina for the alertness and awareness needed to operate and direct a computer weapons system.

The problems of other medical services are always of interest. The recent visit of the Chinese medical delegation was of great

potential and clearly our advice is now being sought and we can learn from each other Their naval visits were to Haslar and INM and we established a good rapport Since the JRNMS has value as a source of historical records we go back in our records unbroken to 1915 — small photographs to record the visits are included in the Service news Some of the statistics and records in articles in past Journals are now the only source of such information that is readily available for anyone ferreting about in our recent history In doing so it's amusing to see what others have written in their youth and to re read the opinions and objectives of our predecessors

This is a thin Journal for which we apologise Perhaps our contributors have been reading Bertrand Russell[1] Certainly the laziness which disguises itself by ceaseless and often pointless activity is all too common and the post box syndrome benefits no one and eventually rots the post box holder It is perhaps a relief not to be plagued by such contributors — but we would like more original articles from which to select particularly from serving officers

1 In Praise of Idleness Essays B Russell 1935

Blood Loss during Abdominal Hysterectomy

B E Lambert, D A Logan and A Sharkey

ABSTRACT

Five blood loss was calculated during 85 abdominal hysterectomies It increased with the patient s age and weight and the duration of surgery The loss was least in those patients operated on in the second week after a menstrual period Only 12 per cent of patients required a blood transfusion during operation

Introduction

The literature gives little information on blood loss during gynaecological operations but it does describe acceptable methods of measuring the loss The first satisfactory report was in 1924 Gatch and Little reported blood losses at standard abdominal hysterectomy to be between 200 and 300 cc Pilcher and Sheard (1937) noted a 650 cc loss during a vaginal hysterectomy In the following years scattered reports of gynaecological procedures were published, among other surgical operations with varying blood loss In approximately 100 abdominal hysterectomies the losses reported ranged between 50 cc and 1 500 cc From a review of these cases it is evident that there are a large number of variants that need to be considered

Roach *et al* (1972) reported that in 100 patients undergoing vaginal hysterectomy for sterilisation the blood loss was significantly lower when the operation was carried out in the second half of the menstrual cycle

The present investigation was initiated to determine the effect of age, weight parity, endometrial histology and length of operation on blood loss during abdominal hysterectomy

Patients and Method

Eighty five patients undergoing abdominal hysterectomy over a three month period were studied Consecutive cases could not be studied but at no time were selections or deletions made other than the availability of personnel to calculate the blood loss Nineteen surgeons took part in the trial and all performed a standard total abdominal hysterectomy (with removal of the ovaries where indicated) Nineteen anaesthetists were involved in the trial and there was no "standard" anaesthetic Most patients had anaesthesia induced by thiopentone, followed by a relaxant and were ventilated with oxygen and nitrous oxide Intravenous analgesia was given as necessary Forty eight patients had the same anaesthetic induction with thiopentone alcuronium (alloferin), fentanyl intubation with a cuffed tube under direct vision and intermittent positive pressure respiration with oxygen and nitrous oxide Reversal of anaesthesia was with atropine and neostigmine Two patients had epidural anaesthetics and it is remarkable that their blood pressure showed little variation during the operation

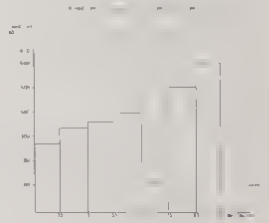
The operative blood loss was calculated by a gravimetric technique Swabs in a dry state are fairly uniform in weight, and making the assumption that 1 ml of blood weighs 1 gram the numerical difference between the weight of used and dry swabs was taken to equal the number of millilitres of blood lost Where suction was used the volume of blood in the suction bottle was accurately measured The amount of blood soaked into drapes was uniformly small and an estimate was made in each case

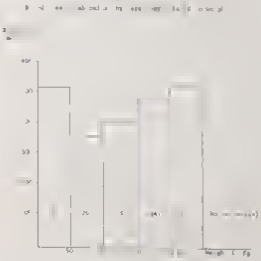
Results and Discussion

The average age was 42.2 years the average duration of surgery 63 minutes (range 32 to 140 minutes) The average blood loss was 386 ml (range 94 to 1324 ml) Surgeons under training (below the grade of senior registrar) took longer over the operations and generally incurred the heavier blood losses

Blood loss in relation to operation time

The time taken for the operation was measured from the time the drapes were secured to the time of the application of the wound dressing The results are summarised in table 1 and depicted graphically in figure 1 These results show an increase in blood loss with the total time for the operation This also demonstrates an increase in blood loss with operative inexperience and with the technically more difficult operations The mean calculated blood loss was least in those operations that took less than 35 minutes

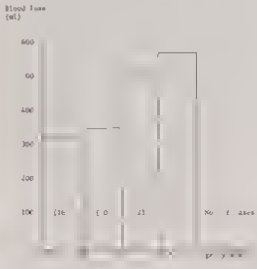




Blood loss in relation to weight

All patients were weighed on admission to the hospital A comparison of blood lost during the operation between patients of varying weights is summarised in table 2 and shown graphically in fig 2 The group below 50 kg includes some patients who had very heavy blood loss because of difficult operations The smallest average blood loss was in weight group 50 to 60 kg. There was a steadily increasing blood loss with weight

Figure 3
Blood loss at abdominal hysterectomy according to age

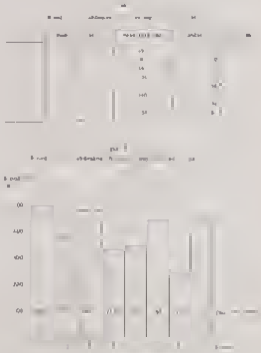


Blood loss in relation to age

The patients were grouped by decades The results are summarised in table 3 and depicted in graphic form in figure 3 The smallest average blood loss calculated was in that group below 35 years and the largest in the perimenopausal and postmenopausal group Blood loss at operation appears to increase with advancing age

Blood loss in relation to parity

These results are shown in table 4 and depicted graphically in fig 4 From our series, there is no relationship between the blood loss and parity



Blood loss in relation to the menstrual cycle

The patients had varying menstrual cycles and in some cases they were irregular Those patients still menstruating were divided into four groups according to whether they had menstruated less than seven days between 7 and 14 days between 15 and 21 days, or more than 21 days before operation The results are recorded in table 5 and illustrated in fig 5 Postmenopausal patients had a greater average blood loss than those who were still menstruating but surgery on the postmenopausal women was usually for very large fibroids or carcinoma of the cervix Among those patients still menstruating the smallest average blood loss was in that group who had menstruated between 7 and 14 days prior to operation

Blood transfusion during abdominal hysterectomy

Ten patients were transfused with two units of whole blood during and immediately after the operation Of this group three had a haemoglobin below 10 5 gm per cent prior to operation nine operations took longer than 60 minutes, and in seven the blood loss was in excess of 600 ml None of the patients had a significantly depressed blood pressure during the operation

Cross matching blood for patients undergoing major gynaecological surgery is costly and occupies a great deal of laboratory time In this series only 12 per cent of that blood was used We feel this fact is worthy of consideration and, as blood substitutes are readily available perhaps we should consider grouping and holding serum only for routine surgery reserving a full cross match for those with a low haemoglobin or where the operation is expected to be long and difficult.

Conclusions

1 Blood loss during total abdominal hysterectomy was greater than expected
2 In this hospital the average blood loss for operations performed in the last quarter of 1977 was 386 ml
3 Calculation of the blood loss by the gravimetric method was simple and satisfactory
4 The blood loss at abdominal hysterectomy increased directly with the age and weight of the patient and the duration of the operation Buchman (1953) made similar observations in respect of vaginal hysterectomy but he found no relationship between blood loss and age.
5 The average blood loss was least in those patients who had the operation during the second week after their last menstrual period Sprague and van Nagell (1974) observed a smaller average loss in the proliferative phase of the cycle

6 Since in our series, only 12 per cent of patients required blood transfusion the requirements that all patients be cross matched may be unnecessary

All the data was subjected to regression analysis on the principal variables of age weight parity haemoglobin blood pressure variation, length of operation and phase of the menstrual cycle

Acknowledgements

Our thanks are due to the nursing staff and consultants of St. Mary's Hospital for allowing us to use their patients in this study and to Miss J L Small for secretarial assistance

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A Naval Practice Considered

D P Pryce

Introduction

The Families Clinics in Malta have seen many patients staff and different locations through the years. As the era of a British military presence draws to an end this article is intended to stimulate nostalgia, interest and controversy A breakdown of the attendances at the Joint Services Families Clinic (JSFC) *Floriana* during two separate months a year apart is presented and the pattern compared with two United Kingdom practices

It was with enthusiasm and curiosity that one landed at RAF Luqa The *JSFC Floriana* is outside the gates of Valetta, just across the ditch' It was not as imagined for the island has to be seen for itself This started a tour that saw the beginning of the withdrawal of British Forces

During the year April 1976 to April 1977 the medical officers at *JSFC Floriana* were reduced from five to three There was a corresponding reduction in both nursing and locally employed supporting staff The latter event was especially sad as some had worked for the Crown for 30 years and more stories of the war years enlightening many a drive to visits at St Paul's Bay and elsewhere on the island

The majority of the work was at the main clinic at *Floriana* and a smaller one at St Andrews home of 41 Commando However, awaiting a Royal Fleet Auxiliary Vessel at 0300 outside Grand Harbour caused one not only to contemplate diagnostic and language problems but also the question of clearing customs and immigration should the patient be landed Decompression cases from civilian holiday makers during the summer months meant a busy few days for all concerned whilst school lectures and broadcasting presented challenges different from the usual one to-one relationship in the surgery

The Practices Considered

The city figures relate to a United Kingdom practice of three principals and up to two trainees caring for a total of 7 850 patients Those of the country practice relate to a United Kingdom practice of four principals caring for 7 800 patients

At *JSFC Floriana* in April 1976 the list total was 4 975 patients cared for by five medical officers In April 1977 the numbers had fallen to 4 378 and three medical officers

Analysis of Patient Attendance

The patients were classified according to the Royal College of General Practitioners' and Office of Population Censuses and Surveys' Classification of Morbidity Table 1 shows the number of attendances during the months of April 1976 and 1977 at *JSFC Floriana* together with those for a month from a city and country practice in the United Kingdom at the same time of the year Table 2 lists the diagnostic groups in order of frequency and shows the percentages of the groups as of total attendances

Table 3 shows the ten most frequent presentations at the respective clinics by sex.

Overall respiratory diseases accounted for

Table 1

Number of male female and total attendances

	FLORIANA 76			*FLORIANA 77*			*CITY*			[illegible]		
	♂	♀	Total	♂	♀	Total	♂	♀	[illegible]	♂	♀	[illegible]
Communicable diseases	31	55	86	14	27	44	20	34	5	[illegible]	[illegible]	[illegible]
Neoplasm	1	3	4	0	0	0	3	6	9	5	[illegible]	[illegible]
Allergy and Endocrine	26	53	79	9	19	33	4	14	[illegible]	[illegible]	[illegible]	[illegible]
Blood	0	3	3	1	0	1	1	3	[illegible]	[illegible]	1	1
Mental and Personality	16	130	146	7	44	66	14	34	5	1	9	32
CNS	74	123	202	37	153	212	36	54	82	9	57	106
Circulatory	4	2	11	3	12	15	15	14	1	1	11	31
Respiratory	141	330	492	113	181	296	74	112	101	49	127	226
Digestive	29	60	89	7	8	15	39	38	77	24	13	37
Genito-Urinary	13	135	149	35	142	365	9	55	64	15	30	34
Pregnancy and Childbirth	0	44	44	0	34	34	0	34	58	0	15	15
Skin and Connective Tissue	25	43	98	22	70	92	26	43	78	43	33	25
Bones and Joints	3	44	32	1	26	27	32	39	71	37	22	64
Congenital Malformations	0	1	1	0	0	0	1	0	1	1	3	4
Diseases of Infancy	0	0	0	1	0	1	0	0	0	0	0	0
Symptoms	1	4	7	14	10	24	5	4	11	7	11	10
Trauma	23	32	33	14	19	33	39	30	49	38	23	33
Prophylaxis	24	148	189	91	173	313	33	118	151	57	53	119
TOTAL	444	1306	1750	334	938	1370	352	976	1027	440	497	936

between 20 and 28 per cent of attendances Likewise approximately 50 per cent of attendances were for respiratory, central nervous system or prophylactic reasons However, the overall picture may give a false impression An example of this is that digestive diseases of males in the city (table 3), being the second most frequent reason for attendance, lowered the figure for the above three to 42 per cent in that specific group

The reasons for attendance are similar in the city and country practices, the exceptions being pregnancy digestive mental/personality and communicable diseases. The main differences in the reasons for attendance at *JSFC Floriana* and the United Kingdom practices were for the groups mental/personality genito urinary, bones/joints and pregnancy (in the country)

The number of male attendances at *JSFC Floriana* were proportionally much less compared to the United Kingdom practices This was due to the Serviceman attending his own unit medical officer and thus the primary care of the family being split between two medical officers

The estimated annual patient attendance rate was much increased at *JSFC Floriana* compared with the United Kingdom practice. The relevant figures are 4 2 and 3 5 attendances for *Floriana* 1976 and 1977 respectively compared to 1 6 for the city and 1 4 for the country

Table 2

Diagnostic groups in order of frequency and per cent of total cases seen

	FLORIANA 76	%	FLORIANA 77	%	CITY	%	COUNTRY	%
1	Respiratory	20 0	Respiratory	23 0	Respiratory	19 6	Respiratory	24 1
2	CNS	11 5	Prophylaxis	16 0	Prophylaxis	14 7	Prophylaxis	12 2
3	Prophylaxis	10 0	CNS	16 7	CNS	8 9	CNS	11 32
4	Mental and Personal sp	8 5	Genito-Urinary	12 9	Skin and CT	7 6	Communicable Diseases	8 8
5	Gen to-Urinary	8 5	Skin and CT	7 8	Digestion	7 4	Skin and CT	8 0
6	Pregnancy	5 4	Mental and Personality	5 1	Bones and Joints	6_9	Bones and Joints	6 8
7	Skin and CT	5 1	Communicable Diseases	3 6	Genito Urinary	6 2	Genito-Urinary	5 7
8	Digestion	5 0	Pregnancy	2 6	Pregnancy	5 6	Trauma	5 6
9	Communicable Diseases	4 9	Trauma	2 5	Mental and Personality	5_5	Digestion	3 9
0	Allergy	4 5	Bones and Joints	2 1	Communicable Diseases	5 2	Mental and Personality	3 6
11	Trauma	3 1	Allergy	1 9	Trauma	4 7	Circulatory	3 4
12	Bones and Joints	2 9	Symptoms	1 8	Consultatory	3 1	Allergy	2 0
13	Circulatory	<1	Circulatory	1 1	Allergy	1 7	Symptoms	1 9
14	Symptoms	<1	Digestion	1 1	Symptoms	1 1	Pregnancy	1 6
15	Neoplasm	<1	Blood	<1	Neoplasm	=1	Neoplasm	1 1
16	Blood	<1	Diseases of Infancy	<1	Blood	=1	Congenital Malformation	<1
17	Congenital Malformation	<1	Congenital Malformation	<1	Congenital Malformation	=1	Blood	=1
18	Diseases of Infancy	<1	Neoplasm	<1	Diseases of Infancy	=1	Diseases of Infancy	<1

Discussion

The practice at *JSFC Floriana* was a very young one, 80 per cent being below 30 years of age and less than 1 per cent over 65 years Thus there was a high demand for paediatric and family planning care The practice was composed mainly of dependants of Service personnel civil servants, including teachers and their dependants Conversely only 4 5 per cent of the country practice were dependants of Service personnel

The differences in frequency of attendance between *JSFC Floriana* and the United Kingdom may be explained by the younger age group the extended family unit situation and the split in the primary care of the family that was found in Malta The apparent anomaly (table 3) of pregnancy being a reason for more frequent attendance in the UK city practice raises the question of whether there was sufficient ante natal care at *JSFC Floriana* But the Royal Naval Hospital at Mtarfa in Malta took over ante natal care at 32 weeks and this affected the figures for the JSFC

The drop in figures (table 1) for *JSFC Floriana* in 1977 compared to 1976 is explained partly by the circumstances of the withdrawal of Armed Forces from Malta. Those people arriving to complete the withdrawal tended to be slightly older Also the families of 41 Commando Unit returning home influenced the average age in the practice and the figures such as those for

Table 3

The most frequent presentations as responsible illness by sex

	MALES				FEMALES			
	[illegible]	[illegible]	CITY	COUNTRY	FLORIANA 1973	FLORIANA 1977	CITY	COUNTRY
1	Respiratory 36%	Respiratory 36%	Respiratory 22%	Respiratory 33%	Respiratory 35%	Respiratory 15%	Respiratory 15%	Respiratory 25%
2	CNS 18%	CNS 17%	Digestive 11%	Prophylaxis 13%	Prophylaxis 12%	Xenophytosis 10%	Prophylaxis 17%	Prophylaxis 11%
3	Communicable Disease 7%	Xenophobia 12%	CNS 10%	CNS 11%	Genito-Urinary 10%	CNS 12%	Xenogenous 7%	CNS 12%
4	Digestive 5%	Skin 8%	Skin 10%	Skin 5%	Mental/Personality 10%	Genito Urinary 15%	CNS 8%	Communicable Disease 8%
5	Prophylaxis 4%	Genito-Urinary 7%	Xenophobia 3%	Bones 4%	CNS 9%	Skin 7.5%	Genito Urinary 8%	Genito Urinary 6%
6	Allergy 5%	Communicable Diseases 5.7%	Bones 3%	Communicable Diseases 7.7%	Xenogenous 2.8%	Mental/Xenomality 6.8%	Skin/Communicable Diseases 6.1%	Skin/Communicable Diseases 6.8%
7	Skin 5.4%	Trauma 8.1%	Trauma 8%	Trauma 4%	Skin/CT 3.9%	Pneumonia 3.3%	Bones/Joints 5.3%	Bones/Joints 5.4%
8	Xenoma 5.2%	Symptoms 3.3%	Communicable Diseases 5.3%	Digestive 5.3%	Digestive 3.3%	Communicable Diseases 3.8%	Digestive 5.6%	Trauma 5.2%
9	Mental Personality 3%	Allergy 3.7%	Mental Xenomality 5.0%	Circulatory 4.3%	Communicable Diseases 3.3%	Bones/Joints 3.8%	Mental/Personality 3.3%	Mental/Xenomality 4.7%
10	Genito-Urinary 3%	Digestive 3.3%	Circulatory 3.3%	Genito-Urinary 3.0%	Allergy 3.1%	Trauma 3.0%	Communicable Diseases 3.0%	Pregnancy 3.0%
Total No of Attendances	444	334	357	448	1304	336	377	497

pregnancy

The increased annual patient attendance rate was probably due to the younger age and the extended family unit situation together with a more frequent change of patients The practice at *JSFC Floriana* changed almost completely every two to three years It would be interesting to know if the above attendance rate increase is confirmed from other overseas practices If so this should be considered in the complementing of these practices Other factors might have been review rates (which vary with individual medical officers) and where the clinic was situated in relation to the patients living areas These are not considered significant in Malta as at the time the figures were taken the majority of the medical officers were experienced practitioners The clinic was situated so that all bus routes went past but was not in the proximity of any large married quarter complex. There was a NAAFI nearby but again it was far enough away to discourage people from 'popping in whilst shopping'

The withdrawal does not seem to have caused a great deal more work in respect of patient attendances although those for prophylaxis were markedly increased. The impression gained by most of us was that, as the withdrawal progressed more cases of anxiety presented but this is not reflected in the figures. Perhaps the chronic weekly attendances had been the first to return

home The reasons for the other increases in April 1977 as compared to 1976 are not clear

It is acknowledged that such figures may be affected by many factors such as climate, or husbands being on temporary deployments However, such impressions may help in self audit The general practitioner is the main filter and generally the first to see the patient. He is also the first, possibly, to make mistakes In a closed environment where everyone knows and tends to compare one another, this may lead to greater problems than in a civilian practice, especially if there is not a good relationship between primary and secondary care teams This good relationship is a fundamental necessity of good medicine wherever practised and happily was so in Malta for everyone was a naval medical officer whatever his specialty

Acknowledgements

I am most grateful to Update Publications for the United Kingdom practice figures used for comparison I also wish to thank my colleagues at *JSFC Floriana* who helped collect and classify the figures for Malta

PUBLICATIONS BY RN MEDICAL OFFICERS — ABSTRACTS

VOROSMARTI J Jr, BARNARD E E P, WILLIAMS J and HANSON R du G (1978) Nitrogen elimination during steady state hyperbaric exposures *Undersea Biomedical Research* 5 (3) 243–252

Nitrogen elimination was measured in six divers during steady state exposures in an oxygen nitrogen atmosphere at 1 2 and 3 ATA using both oxy helium and pure O_2 as washout gases This was accomplished by using mass spectrometry to measure the expired N_2 concentration breath by breath over periods of 120 min in all experimental conditions except for O_2 breathing at 3 ATA which was limited to 30 min periods In all cases the area under the elimination curve increased with pressure Total nitrogen under the curve was also greater when breathing O_2 than when breathing oxy helium but the difference decreased with depth and washout time Nitrogen elimination on a semilogarithmic plot fell rapidly during the first four minutes and then shows a slow linear fall for the remainder of the measurement period Effective elimination of nitrogen decreased with depth and oxygen was more effective than oxy helium in washing out nitrogen at all depths studied Possible causes of the different variations noted in the washout curves during the experiment are discussed

HANSON R du G (1978) Working in cold environments — lessons to be learned from diving. *Annals of Occupational Hygiene* 21 193–198

The lessons which have been learned from deep diving in cold water are the importance of heat loss through the respiratory tract the importance of being able to maintain the living quarters within narrow limits of temperature the unsuitability of wet suits as insulation for all but the shallowest dives and the importance of heating the diving bell

The Editor would be glad to receive abstracts of any papers by RN medical and dental officers appearing in other professional journals

Transient Ischaemic Colitis — Colonoscopy and Biopsy in Diagnosis

R.H. Hunt and J.D. Buchanan

Introduction

Colonoscopy has established its place in the diagnosis of barium enema negative rectal bleeding (Swarbrick *et al* 1976, Waye 1976, Hunt, 1978, Teague *et al*, 1978) and has become increasingly widely accepted as useful in patients with acute per anal haemorrhage (Deyhle *et al* 1974, Rossini 1978). There are few reports of the endoscopic appearances of transient ischaemic colitis (McNeill *et al* 1974, Farmon 1976). The following case report clearly documents the endoscopic changes observed and the related histopathological changes and emphasises the importance of colonoscopy and biopsy in diagnosis.

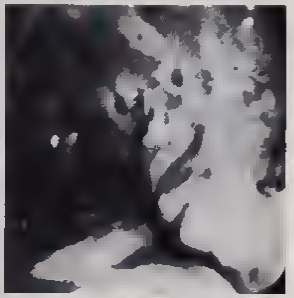

Fig. 1 *Pale [illegible] in upper descending [illegible]*

Case Report

A 55 year old woman, who was mildly hypertensive and controlled by methyl dopa and chlorthalidone presented with painless rectal bleeding. Sigmoidoscopy showed fresh blood coming from above the 20 cm level and a normal mucosa to that point. Haemoglobin 15.4 g/dcl. White cell count 11.8×10^9/c. Plentiful platelets. ESR 24. Initially the serum K^+ was 2.0 mmol/L. ECG was normal. Liver function tests were normal. A mid stream urine specimen showed a coliform infection.

Emergency colonoscopy with the Olympus CFM93 was performed as far as the mid transverse colon. The mucosa in the upper descending colon and at the splenic flexure was initially pale with petechiae (fig 1) and then showed superficial ulceration with a yellowish exudate (fig 2). On deeper intuba-

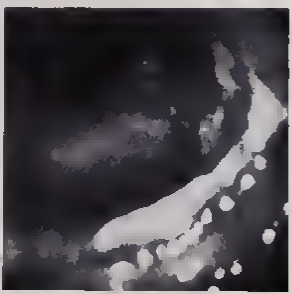

Fig. 2 *Small in[illegible] superficial serpiginous ulceration with yellowish exudate*

tion, the mucosa was severely oedematous with pseudo polyposis and mucosal ulceration and areas of fresh haemorrhage could be seen (fig 3)

The endoscopic appearances were similar to severe chronic inflammatory bowel disease and most like Crohn's disease but ulceration was clearly acute and superficial, and the pseudo polyps were soft and haemorrhagic with yellow greyish pseudo membranes over the congested mucosa. Multiple biopsies were taken

Histological examination showed areas of "structured" mucosal necrosis, congested and oedematous submucosa with sludging of red cells in small vessels No muscularis propria was present in the biopsies (figs 5 and 6) This histology confirmed the diagnosis of a segmental ischaemic colitis

Double contrast barium enema showed minimal irregularity of the mucosal pattern at the splenic flexure and in the proximal descending colon with apparent shallow ulceration No other evidence of mucosal or inflammatory bowel disease was seen and no other abnormality was noted

Management of the patient was supportive with replacement of fluids and correction of the serum K^+

At repeat colonoscopy 24 days later using the Olympus CFLE3 the colonoscope was passed easily to the caecum The mucosa within the region previously affected remained abnormal with a generalised loss of vascular pattern. The taenia coli were more prominent suggesting thinning of the bowel wall (fig 4) The mucosa was oedematous from the mid sigmoid to mid transverse colon with residual areas of inflamed mucosa in the splenic flexure Biopsies were again taken

Histological examination of these specimens showed almost complete regeneration of mucosa with only mild residual irregularities in crypt architecture (fig 7) The presence of numerous haemosiderin laden macrophages in the submucosa marked the site of a previous ischemic process (fig 8)

Fig 3 Soft [illegible]

Fig 4 Re[illegible] th loss of [illegible] and pr[illegible] [illegible]

Discussion

There are few reports of the endoscopic appearances of ischaemic colitis in the literature and the first report (McNeill *et al*, 1974) concerned a case where ischaemia of the colon was suspected as a complication of the clinical situation

Although infarction of the colon is more typically reversible it commonly presents with abdominal pain (Marston *et al*, 1966) Painless episodes of ischaemia affecting the

Fig 5 *Structured mucosal necrosis with ghost outlines of ulcerated crypts (H&E × 100)*

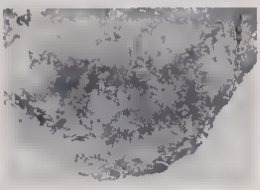

Fig 6 *Intact mucosal surface that with [illegible] of the submucosa (H&E × 75)*

Fig 7 *Haemosiderin laden macrophages in the submucosa of the healed lesion (Perls × 100)*

Fig 8 *Persistent irregularity of crypt architecture in the healed lesion (H&E × 100)*

colon probably often go undiagnosed, despite overt rectal bleeding. This case illustrates the severity of the mucosal lesion as observed endoscopically and histologically in a patient who presented with transient ischaemic colitis, and painless rectal bleeding. The barium enema showed none of the typical features of ischaemic colitis (Marshak and Lindner 1968) and colonoscopy and biopsy provided valuable additional information in seeking a diagnosis. Emergency colonoscopy has previously been considered an unsuitable investigation in patients with acute colonic haemorrhage (Hedberg 1974, Sivak, Sullivan and Rankin 1974) but Devlin *et al* (1974) and more recently Rossini (1978) have reported encouraging results in acute rectal bleeding. This changed approach to colonoscopic technique has made diagnosis more accurate.

The earliest lesion of transient ischaemic colitis appears endoscopically as a pale mucosa with haemorrhagic spots (fig 1). As the colonoscope intubates the ischaemic segment there is serpiginous superficial ulceration such as is often seen in Crohn's disease but without the chronic inflammation and rigid oedematous mucosa (fig 2). Within the ischaemic segment where the lesion is most severe pseudo polyps are seen (fig 3) which are usually located to the mesenteric wall of the colon. These are grey in colour, soft and friable and ooze on biopsy. This greyish colour of the mucous membranes is in contrast to the greenish colour seen in patients with pseudo membranous colitis.

The pathology of experimental ischaemic necrosis has been well described (Whitehead 1972, Alschibaja and Morson 1977) and this report of the histological appearances from colonoscopic biopsies of transient segmental ischaemia correlates well. In the early phase there is necrosis of the superficial epithelium and the superficial capillaries dilate releasing blood into the interstitium and bowel lumen, while intact vessels adopt a ballooned appearance with 'sludging' of red cells. The inner dead area takes on a ghost like appearance the so called 'structured necrosis'. After 48 hours the dead area begins to slough and repair takes place by epithelial regeneration from residual crypts and from the edges of denuded areas over granulation tissue which replaces the ischaemic zone. Haemosiderin laden macrophages often persist at the site of granulation tissue (fig 6). It has been stated that where the mucosa is extensively destroyed it does not re-epithelialise and therefore it would seem that some viable cells must have survived in the bases of the crypts in spite of the appearances of total mucosal necrosis (fig 5). If the muscularis mucosae is effaced it is also permanently lost and in this case this had not occurred since it is well seen in the second series of biopsies (fig 7).

In the acute phase the endoscopic appearances are similar to Crohn's disease and the histological appearances of the healing lesion may be confused with features of Crohn's disease, especially where the muscularis mucosae has been destroyed and there is extensive fibrosis and residual chronic inflammation in the submucosa.

During the process of repair the macroscopic appearances are very variable but include residual congestion, oedema, variable ulceration and granularity of the mucosa and often scarring which can give a cobblestone appearance.

There may be stenosis if the muscularis propria has been involved. In this case the ischaemia was transient and the damage to the mucosa seems to have undergone total resolution microscopically although the endoscopic appearances of prominent taenia coli suggest that there was some thinning of the colonic wall.

The diagnosis of transient ischaemic colitis may be difficult and colonoscopy proved a valuable aid to diagnosis in this patient. Emergency colonoscopy should be considered in all patients with sudden onset of painless rectal bleeding.

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PATHOLOGY IN THE ROYAL NAVY

A symposium for Service clinicians will be held on July 3 1979 at Royal Naval Hospital Haslar Papers of general interest will be presented and a detailed programme will be available later All medical officers are invited to attend In order to arrange adequate catering facilities, officers wishing to attend should notify Surgeon Commander W Whitlow at RNH Haslar (ext 41343).

Shrapnel Injuries in Children

A H Osborne

ABSTRACT

Five case reports of shrapnel injuries to nine children are presented. The principles underlying treatment are discussed and the literature is reviewed.

Introduction

Nine children were involved in two separate incidents. They were treated by a Tri Service Field Surgical Team (FST) during a 4½ month period in Oman where Her Majesty's Government were providing medical assistance to the Sultan.

In the first incident four children between 7 and 14 years tried to prise off the fins from an unexploded 60 mm mortar bomb. In the second, five children between 5 and 7 years tried to dismantle a rocket propelled grenade.

Evacuation and Resuscitation

All nine casualties were medivaced by helicopter to the FST within 45 minutes of injury. Shell dressings had been applied at the scene of the explosions. They were given adequate resuscitation in the FST before undertaking any surgical procedures. We were fortunate in having a panel of blood donors prepared to give blood at one hour's notice and casualties like these often received fresh blood within one hour of arrival.

Case Reports

Case 1. A ten year old girl sustained 31 shrapnel soft tissue wounds, none more than 3 square cm in area, to her head, body, arms and legs. The right acromio clavicular joint was disrupted. No vital structures were involved. All wounds were superficial and were treated with initial toilet, debridement of skin edges and delayed primary suture at five days.

Case 2. An eight year old boy presented with 14 shrapnel wounds to his body and a deep wound to his right abdomen with guarding. He also had a compound comminuted fracture of the mid shaft of the right tibia with skin loss of 12 × 10 cm over the fracture. There was also a more severe open comminuted fracture of the left tibia with complete loss of the anterior surface of the upper third (fig 1). Skin loss extended 20 × 12 cm over the front of the tibia and 10 × 7 cm over the popliteal fossa with exposure of the popliteal vessels. Peripheral pulses and nerves were intact. Laparotomy revealed blood stained fluid and a mesenteric tear which was repaired. The right leg was skin grafted five days later and plaster applied. After one month there was a 100 per cent graft take and the fracture had united. Little bone of the upper third of the left tibia

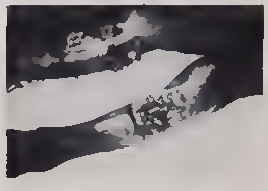

Fig 1 *Shrapnel injuries to both legs in Case 2*

beneath the plateau, remained after initial wound excision Phemister bone grafts and fascia lata were used to fill the defect. The anterior wound was covered with split skin taken from the left thigh Stabilization of the tibia was obtained by two horizontal 'K' wires inserted across undamaged bone with an external fixation device to prevent shortening (fig 2) Eight days later an *E Coli*

Fig 2 *Comminuted compound fracture of left lower limb with external fixation device in Case 2*

infection developed involving 35 per cent of the skin graft of the left leg Intravenous gentamycin (no serum assays were available) prevented further spread but failed to control the infection The patient was transferred to England where the infection was eradicated and skin grafting completed Fortunately bony union continued uneventfully and he was able to full weight bear at six months

Case 3 A seven year old boy was admitted with a traumatic amputation of his left hand partial severance of his right thumb, and burns to his right wrist. A further 15 shrapnel wounds involved both legs and both arms, the right side of the chest and skull Formal amputation through the left radiocarpal joint was performed on admission Routine wound excision was performed to all other wounds. Delayed primary suture was carried out at five days together with amputation through the right first metacarpo phalangeal joint where dry gangrene had developed Examination at this time showed a full thickness burn on the right forearm measuring 7 × 3 cm This was successfully excised and grafted with skin from the left thigh

Aqueous fluid was leaking from the right eye due to a small fragment which had lodged in the iris suture of the cornea and excision of a portion of the iris was performed

Case 4 An eight year old boy was admitted with 13 shrapnel wounds to the chest both legs and left forearm A small shrapnel injury to the dorsum of his left wrist had resulted in complete tears of the extensor tendons of the ring and middle fingers Primary tendon repair with primary excision of injured tissue was carried out Routine wound excision was performed on the remainder of the shrapnel injuries with delayed primary suture five days later

Case 5 A five year old child had sustained "blast eyes" and two small lacerations to the forehead due to shrapnel splinters

Case 6 A seven year old boy had two shrapnel injuries to his right chest, with superficial burns and shrapnel injury to his right hand The distal interphalangeal joint of the right middle finger had been exposed with a comminuted fracture of the distal end of the middle phalanx. The bone was necrotic and cloth debris were embedded Skin loss was present over the third interosseous space extending over the head to the fourth metacarpal The extensor tendon to the ring finger was splayed over 1 cm A fracture of the proximal phalanx of the ring finger was also present with embedded shrapnel

Superficial burns covered the extensor surface of the middle ring and little fingers A deep laceration of the terminal segment of the ring finger was also present Shrapnel injuries to the right chest were treated routinely Amputation proximal to the distal interphalangeal joint of the right ring finger was carried out Viable skin flaps were used to cover the adjoining defects A small fragment was removed from the anterior compartment of the right eye

Case 7 A six year old boy had sustained superficial burns of his left arm and face These were treated conservatively

Case 8 A 14 year old boy had severe facial and skull injuries with traumatic amputation of both arms at mid forearm level He was dead on arrival

Case 9 A 10 year old boy had severe abdominal injuries and partial amputation through the right thigh He was dead on arrival

Initial Toilet and Debridement

Case 1 illustrates the multiple shrapnel injury where no vital structures are involved and no fractures have occurred The wounds were contaminated with sand and clothing on arrival Initial treatment consisted of thorough toilet with 10 per cent hydrogen peroxide solution in water followed by debridement and removal of all dead tissue Shrapnel was removed if found at operation but otherwise left *in situ* Each wound was lightly packed with dry gauze swabs which controlled any superficial oozing Swabs were held in place by crepe bandages. No attempt was made to use cream or powder antibiotics locally Paraffin gauze or tulle gras were not applied as this made delayed primary suture more difficult. Their usefulness is questionable provided a thorough debridement is carried out

Case 6 demonstrates the problem of shrapnel injury to the hand Thorough debridement would have involved the digital vessels nerves and flexor/extensor tendons thereby destroying any function Initial wound excision was therefore technically inadequate and at five days amputation of part of two digits was performed to give a functioning hand and avoid resultant stiff useless fingers. However most of the viable skin distal to the amputation was used to replace adjoining defects which would otherwise have necessitated full thickness skin grafts being applied from elsewhere

Delayed Primary Suture

Delayed primary suture (DPS) was performed at five days This was first carried out in 1854 by George Mackay the Surgeon in *HMS Agamemnon* at Sebastopol during the Crimean War This principle tends to be forgotten at the start of each conflict, only to be learnt from practical experience later It can be applied with good effect to road traffic accidents and other injuries in civilian life Skin cover in *Case 1* was obtained without resource to grafting The mobilisation of flaps becomes increasingly difficult after seven days when the skin edges have to be re excised (Watt 1976) Wounds were thoroughly cleansed with 3 per cent hexachlorophane solution and skin edges mobilised by undermining for 6 to 8 cm The judicious use of local transposed flaps and Z plasty covered the remainder 4/0 silk or nylon were used and left *in situ* for a minimum of 14 days Deep sutures were avoided It was found that many particles of shrapnel worked their way to the surface between the initial debridement and DPS They tended to come away with the original packing swabs.

Abdominal Injuries

Adequate exploratory laparotomy is essential, usually through a long mid line or paramedian incision Only a minor mesenteric tear was found in *Case 2* and easily sutured

Treatment of abdominal shrapnel injuries during the October 1973 Arab Israeli war is admirably summarised by Pfeffermann *et al* (1976) Stomach tears were sutured in two

layers after wide excision of wound edges. Duodenal tears were sutured transversely and in one instance by passed by a gastrojejunostomy Single perforations of the small intestine were sutured, while segments were resected in two layers when multiple perforations or extensive mesenteric tears compromised the vascular supply Injured large intestine was exteriorized as a loop colostomy although in UK a double barrelled colostomy with excision of the affected segment is often preferred In very low sigmoid or rectal injuries the perforations were closed and a diverting colostomy added

Splenectomy was performed for all injured spleens Small tears of the liver were sutured although larger ones required excision of devitalised tissue with ligation of large vessels and bile ducts. Partial nephrectomy was attempted for renal lesions but ultimately all injured kidneys had to be removed Bladder lacerations were repaired and the ureters anastomised primarily over ureteric catheters

Skin Grafting

Fortunately in *Case 2* the right lower leg had a stable tibial fracture which was treated by a long leg backslab Wide excision of skin down to the bone was performed Split skin grafting was carried out on a clear granulating wound at five days using the right thigh as the donor area with a 100 per cent take.

The left leg was more extensively damaged (fig 2) The tibial comminuted fracture was controlled by external fixation with two Kirschner wires passed through uninjured skin with a home made external metal device to control rotation Skin grafting at 10 days was only 65 per cent successful due to *E Coli* infection Pollack and Parkes (1969) recorded over 100 cases of war wounds suffered in Vietnam which were treated by open skin grafting and returned to the United States These arrived between 5 and 20 days after injury having had successful initial debridement and excision performed in Vietnam Between 95 and 100 per cent take of graft was achieved in all patients save one Mesh grafting was not applied here because of inferior cosmetic and functional results Postage stamp grafting was rejected for the same reason but exposed bone, tendon nerve or artery were covered by skin flaps without preliminary skin grafting However mesh grafting was used extensively in Vietnam where skin was in short supply and where extensive burns had occurred Salisbury (1971) reported an 85 per cent take in 130 cases A mesh graft can cover three times the surface of a non mesh graft and was particularly useful in short amputation stumps

Vascular Injuries

The left popliteal vessels were exposed in *Case 2* but examination showed them to be undamaged although devoid of any cover Muscle cover was obtained by transposition

Arterial surgery is now common in war situations A direct anastomosis the injured vessel being divided serially until the artery is grossly normal, is preferable to reverse long saphenous vein grafting (Boyd 1975) A suitable vein graft may be hard to find and rarely should a graft be taken from an injured limb Alternatives such as patch grafting and fabricating a sizeable vein from two thin strips should be considered (Livingstone and Wilson, 1975). A higher failure rate existed in Vietnam when grafting was used as an alternative to direct arterial anastomosis A disadvantage is that the graft has to be covered by adjacent muscles, while the remainder of the wound is left open for subsequent delayed primary suture (Third Conference on War Surgery 1969)

Blast Lung

Only one child sustained mild symptoms of blast lung Damage was only transient with pulmonary oedema at 48 hours the symptoms were mild dyspnoea and moist crepitations in both lungs which resolved with physiotherapy

Blast injuries usually occur when people are close to an explosion especially in confined spaces, and not in open desert as in our series Diffuse interstitial pulmonary oedema is apparent at 48 hours when symptoms develop Blood gas analysis shows carbon dioxide retention and increasing hypoxaemia

Treatment consists of assisted ventilation with a positive end expiratory pressure (PEEP) and high inspiratory concentrations of oxygen diuretics and steroids (Gray and Coppel 1975)

Fasciatomy

This was performed on the lower left leg in *Case 2* to avoid post operative oedema and muscle infarction The anterior tibial compartment should be decompressed in all cases seen after a delay of several hours When muscles above the knee are severely damaged both the anterior and posterior compartments should be decompressed If one of the tibial compartments is severely damaged by a gun shot wound, the other compartment should be decompressed by fasciotomy (Livingstone and Wilson 1975)

Amputations

Formal disarticulation of the left hand was performed in *Case 3* at the radio carpal joint. This was the most distal site possible with viable skin flaps using distal intact skin A dry gauze swab was placed across the distal wound and the flaps sutured over it leaving the ends free for drainage This swab was removed at five days and the suturing completed The wound was fully healed ten days after the incident Many 'optimum' levels for amputation have been described but the aim initially should be to preserve as much as possible as any more definite procedure can be carried out later Similarly amputation through the right first metacarpo phalangeal joint for dry gangrene was an attempt to preserve as much as possible The factors of general body and stump growth are significant in children Thus disarticulation should be performed rather than an amputation through the shaft of a long bone. Disarticulation preserves the epiphysis distally and therefore stump growth continues at a normal rate Disarticulation also prevents terminal overgrowth of the bone This overgrowth of a sectional long bone is caused by the apposition of new bone and is not related to growth of the epiphysis at the proximal end of the free bone.

A mid thigh amputation in a child of five years can result in a short stump at 14 years because distal femoral epiphyseal growth is eliminated Conversely a short below knee stump may be satisfactory at 14 years because of continued proximal tibial epiphyseal growth (Tooms 1971)

External Fixation Devices

In *Case 2* a home made external fixation device was used not to give compression but to stabilise the grossly comminuted fracture and to give some distraction and prevent shortening Internal fixation in the presence of such skin loss was not indicated, but stabilisation of the limb was necessary

Extensive comminuted fracture skin loss and vascular repair are all indications for external fixation There is no contra indication to internal manipulation at the time of external fixation to prevent muscle interposition and align small bone fragments This makes subsequent skin grafting easier, permits rigid fixation, early movement and avoids fracture disease" (Ronen, Michaelson and Waisbrod 1978) Most of these external fixation devices are expensive and sophisticated instruments are required to apply them. thus making them unsuitable for use by a Field Surgical Team However, an exception to this is the Denham External Fixation Compression device which has the advantage of being inexpensive and easy to apply The pins do not have to be inserted parallel to one another and the position held by a mixed double dose of acrylic cement applied to the carriages on the bar

Ear and Eye Injuries

Four of these children sustained a total of

six drum perforations Treatment consisted of aural toilet and a daily wick impregnated with a topical antibiotic All healed spontaneously

Part of the injured tympanic membrane may be driven into the middle ear spontaneous closure of the drum may occur leaving the remnant as nidus for a potential cholesteatoma (Kerr and Byrne, 1975) Two eye perforations (*Cases 3 and 6*) were sustained These may be easily missed in the presence of other severe injuries

All children had "blast eye" with varying degrees of severity There was excessive lacrimation with blepharitis Conjunctival oedema affected both eyeballs and eyelid All responded to rest antibiotic and hydrocortisone drops over a five day period

injuries following severe trauma such as the rotation of skin flaps surprisingly well which is probably due to growth factors and increased body metabolism The phantom limb syndrome rarely develops in children and neuromas rarely require surgery Certainly children under our care healed more rapidly and adapted to amputation more readily than their adult counterparts

It is felt that these case reports bring out practicable, important points in the treatment of all casualties involving children These incidents occurred in the aftermath of a guerilla insurrection now over in which the debris of war remain The natural inquisitiveness of children is bound to result in such injuries under similar circumstances elsewhere

Closed Primary Suture

Case 4 illustrates the principle of primary suture with complete excision of injured tissue Wound edges of the dorsal aspect of the wrist were completely excised and the two cut extensor tendons primarily repaired with nylon The repair was protected by a "cock up" splint This healed by primary intention The splint was removed at three weeks and at five weeks the child had a fully mobile wrist with functioning extensor tendons

Latta (1951) reported that early in the Korean war primary wound closure with inadequate debridement, relying on penicillin to prevent infection, was the cause of further surgical treatment being required in 12 per cent of cases received in the Royal Naval Hospital Ship *Maine* Hence primary suture should only be carried out after thorough debridement and is not without risk Conversely, *Case 5* involved minor lacerations to the forehead and primary suture was adequate

Conclusion

Children tolerate plastic surgical proce

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Case Report of a Difficult Clinical Diagnosis

A D Snell

ABSTRACT

Distressing minutes are known to be able to produce chest pain. A case is reported of haemoglobin into the upper right quadrant producing typical anginal or infarction pain in the pattern of peritonitis

History and Findings

The patient a 43 year old farm worker presented in the casualty department complaining of a severe crushing central chest pain radiating to his left arm with marked sweating This had occurred at rest and lasted several minutes One week earlier he had developed identical chest pain whilst lifting hay bales This had lasted ten minutes and there was no nausea vomiting or sweating Three days later he had similar pain whilst at rest radiating to his back and neck lasting half an hour

One and a half hours after the onset of his chest pain on the day of admission he developed colicky lower abdominal pain

His previous illnesses included a spontaneous pneumothorax two years previously and epigastric discomfort intermittently for two years, occurring before and after food and relieved by "Rennies

On examination the patient was shocked with a weak pulse of 60/minute in sinus rhythm blood pressure 70/0 heart sounds normal with a clear chest He was tender with guarding in his lower abdomen There was no rebound and normal bowel sounds were present The rectum was full of hard faeces Femoral pulses were present and equal

Results of laboratory investigations were plasma sodium 136 mmol/l potassium 3 9 mmol/l, chloride 104 mmol/l urea 6 6 mmol/l amylase 150 units/100 ml haemoglobin 14.9 g/dl white cell count 23 0 (neutrophils 76%, lymphocytes 23%) The ECG was in sinus rhythm at 60 beats/minute with inverted T waves in AVL The chest X ray (fig 1) showed a rotated film but despite this there was a definite fullness in the left side of the superior mediastinum The left hemidiaphragm was raised and there was a gas shadow suspicious of a hiatus hernia or an emphysematous bulla The abdominal

Fig 1

films were [illegible] apart from showing a lot of [illegible] colon (figs 2a & b)

Fig. 2a

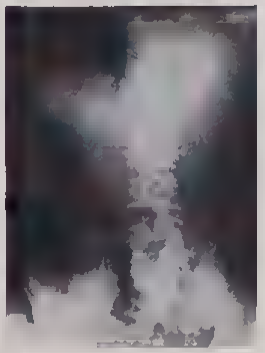

Fig. 2b

A provisional diagnosis [illegible] infarction with peritoneal [illegible] possibly due to bowel infarction or a perforated duodenal ulcer was made the clinical picture did not fit either of these last two diagnoses well A dissecting aortic aneurism was discounted A Ryle's tube was passed and an intravenous infusion of dextrose started

Over the next few hours the patient's condition deteriorated his blood pressure dropped to 52/55 pulse 90/minute, and he started vomiting coffee grounds He exhibited tenderness guarding and rebound in his lower abdomen with very scanty bowel sounds

Having taken into consideration his possible myocardial infarction a laparatomy was performed No free fluid was found and all the abdominal contents were normal He recovered from anaesthesia satisfactorily and regained consciousness his blood pressure being 110/70. ECG in sinus rhythm Whilst still on the operating table he suddenly became breathless and complained of severe chest pain He collapsed in asystole and did not respond to resuscitation

Post mortem findings were a massive left sided haemothorax consisting of several pints of both clotted and fluid blood resulting in collapsed left and right lungs The lungs showed evidence of chronic bronchitis and emphysema There were a few bullae some quite large in the apices of both lungs along the interlobar fissures and at the bases There was a massive amount of recent blood clot attached to the pericardium particularly where it invested the left side of the heart Amongst this blood clot there was a pale yellowish tissue which looked like tumour tissue The haemothorax had resulted from blood clot rupturing into the pleural space The heart, coronary vessels and aorta were all normal Histology showed the mediastinal mass to consist of fresh blood and organising blood clot mixed in with adipose tissue There appeared to be blood filled sacs and

islands of thymic tissue mixed in with the clot The exact character of the mediastinal tumour was uncertain but it was considered to be either a haemangioma or hamartoma and there was no evidence of malignancy No feeding arteries to the tumour were visible The certified cause of death was spontaneous haemothorax due to a mediastinal tumour

Discussion

An explanation of what may have happened is that during the week prior to death the episodes of chest pain with radiation were due to small haemorrhages into the superior mediastinal tumour (the nature of which must remain uncertain apart from the fact that areas of thymic tissue and blood filled spaces were intermixed) The episode just prior to admission must have been a fairly large one resulting in the patient's shocked state.

The ECG showed only inverted "T" waves in AVL which on its own is suggestive of ischaemia. The raised WCC of 23 is interesting In myocardial infarction it often rises but not as high as this There is no satisfactory explanation for this result

In retrospect the chest X ray showed some cardinal features i e. the fullness in the superior mediastinum and the raised left hemidiaphragm suggesting phrenic nerve involvement

The colicky lower abdominal pain was probably caused by irritation of afferent sympathetic fibres from the abdominal viscera Sympathetic fibres from the small intestine travel in the greater splanchnic nerve and synapse at T9 and 10 (possibly 11) The pain is referred to around the umbilicus Ascending colon pain is referred to the supra pubic region and the pathway along the lumbar chain and aortic plexus to the thoracic sympathetic chain at levels T12 and L1 In the cat autonomic afferent impulses in the splanchnic nerves have been traced into the spinal cord and up the ipsilateral dorsal column to the ipsilateral nucleus gracilis and then across to the contralateral thalamus More slowly running impulses go up the spinothalamic tracts to the thalamus on both sides and to the hypothalamus (Bell Davidson and Emslie Smith 1972) In this case the splanchnic nerves involved with blood clot and fresh blood were probably irritated thus causing the abdominal pain and the clinical picture of an acute abdomen It is a form of Ogilvie's syndrome This is a variety of paralytic ileus caused most often by carcinomatous involvement of the sympathetic ganglion around the coeliac axis It can also occur in chest injuries and fractures

The patient's final demise must have been due to a massive haemorrhage into his tumour This was probably either a haemangioma or a hamartoma of congenital origin and the haemorrhages had involved the thymus surrounding it in blood.

Acknowledgements

I would like to thank Mr K F Edwardson Consultant General Surgeon Clatterbridge Hospital Bebington, Wirral for permission to report this case and Dr E Paterson for her invaluable assistance

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A Comparison of Two Quantitative Methods of Analysing Thyroid Dynamic Studies in Nuclear Medicine

A S. Houston and N R Thorpe

ABSTRACT

Two quantitative methods of analysing thyroid dynamic studies using $^{99m}Tc\ O_4^-$ are compared for 33 patients (22 euthyroid 8 hyperthyroid and 3 hypothyroid) A physiological model based on pertechnetate uptake by the thyroid is compared with principal components analysis Both methods gave good separation between euthyroid and hyperthyroid in all but one case while the separation between euthyroid and hypothyroid although based on a small sample appeared to be better for principal components analysis

Introduction

The aim of this paper is to investigate the information content of thyroid dynamic studies in nuclear medicine and to decide if these are a useful adjunct to static imaging of the thyroid. In particular two methods of analysing the activity/time curves obtained using this type of study are compared and contrasted

One method uses a knowledge of thyroid physiology to set up a model to predict the shape of the curve while the other adopts a pattern recognition approach extracting relevant discriminating features It is then possible to compare the distributions of the parameters given by the two methods and to decide which method is the more useful and indeed if either method provides information which is not obtainable from the static image.

In a similar study using ^{99m}Tc colloid liver dynamic studies (Houston and Macleod 1979) it was shown that there was little to choose between the distributions given by principal components analysis and a physiological model suggested by Miller Diffey and Fleming (1979)

Materials and Methods

Following an intravenous injection of 2 mCi of ^{99m}Tc pertechnetate the patient s thyroid is monitored for 1000 seconds using a Searle Pho Gamma HP camera interfaced to a Varian V76 minicomputer Fifty frames of 20 seconds each are formed and summed to form a composite view A region of interest is then drawn around the thyroid and an activity/time curve formed by applying this to the original 50 frames

Thirty three patients referred for thyroid assessment, were examined in this way These were classified into three categories (euthyroid hyperthyroid hypothyroid) based on the results obtained from clinical examination T_3–T_4 measurements and static and dynamic scintigraphy The resulting breakdown showed 22 to be euthyroid, 8 to be hyperthyroid and 3 to be hypothyroid

The activity/time curves were then analysed using two quantitative methods

(a) *Physiological model*

Miller Diffey and Fleming (1979) postulated a model which was shown to predict the uptake of chelate by the liver with a fair degree of accuracy Assuming that the same conditions apply to the uptake of pertechnetate by the thyroid, it can be shown that the count rate due to the thyroid at time t is given by

$$T(t) = C_1 - C_1 e^{-kt}$$

where C_1 and k are constants

It is clear that the activity in the tissue

above and below the thyroid will be included in the total uptake within the region of interest. In order to correct for this another region of interest is drawn over the carotid artery away from the thyroid and a time/activity curve formed. The blood background curve thus formed was shown in every case to have a fairly constant value after the initial vascular "spike" in the first minute after injection. The count rate within the region of interest will therefore be of the form

$$A(t) = C_0 - C_1 e^{-kt} \quad (t > 1 \text{ min})$$

where C_1 is a constant.

An iterative least squares computer programme was used to find those values of C_0, C_1 and k which provide the best fit to the activity/time curve in each case. In order to be certain that the initial 'spike' was ignored the first five points were always omitted.

(b) *Principal components analysis*

The use of principal components analysis as a diagnostic aid in nuclear medicine was described in a previous paper (Houston, 1978). The technique was applied to the 33 thyroid activity/time curves which had been neither normalised nor corrected for blood background. The first two components which contained 93 per cent of the total discriminating information were chosen to describe differences between the curves, the information in each curve being compressed into the two corresponding coefficients.

A typical composite view and region of interest of a euthyroid patient is shown in fig. 1.

Fig. 1. C[illegible] superimposed

The activity time curve thus formed (A) is shown together with the principal components fit (B) and physiological model fit (C) (fig 2)

Results

The parameters obtained using both methods were compared in the following way For the physiological model the parameter C_0 was ignored since it contained the background component $-C_1$ was plotted against k as shown in fig 3 For one hyperthyroid patient the model gave a very poor fit and this point is omitted in this figure. The two coefficients corresponding to the first two components are plotted against each other in fig 4

It is clear for both methods that, in all but one instance the separation between euthyroid and hyperthyroid patients is good Separation between euthyroid and hypothyroid patients is more difficult to interpret due to the small number of hypothyroids. It would appear however that slightly better separation is obtained by the method of principal components.

It is interesting to compare the "goodness of fit" obtained by the methods Principal components analysis gave an overall standard deviation of 1 3 times the expected statistical error while the corresponding factor for the model was 1 5 (again with one curve omitted) In both cases the first five points were again omitted for each curve

Discussion and Conclusion

A reasonable fit was obtained using the model for all but one case of a hyperthyroid

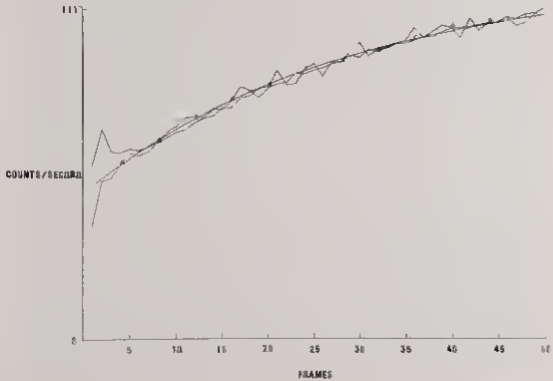

Fig 2 *Activity/time curve for normal thyroid (A) with fit obtained using principal components (B) and physiological model (C)*

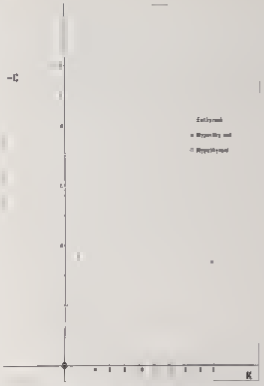

Fig 3 *Plot of the principal components obtained using the logistic model, showing the distribution of the three clinical categories. N.B. One hyperthyroid is omitted to breakdown of model*

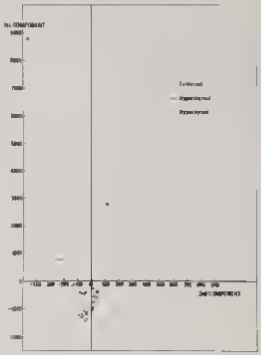

Fig 4 *Plot of the coefficients obtained from the first two components showing the distribution of the three clinical categories*

patient where the time/activity curve reached a peak value fairly early in the monitoring period and then became a slowly decreasing function. The conclusion which can be drawn is that while the model appears to be adequate in most instances it is not infallible. The principal components approach however gave a good fit in every case and slightly better class separation. In particular the three hypothyroid cases are closely grouped.

This latter point although based on a small sample, could be important since it is sometimes difficult to differentiate between euthyroid and hypothyroid using static imaging. Clearly further study is required but the initial indications are that the method of principal components applied to thyroid dynamic studies may have a useful role to play in thyroid function studies.

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A Personal Experience of a Naval Hunger Strike

H E.B Curjel

Hunger strikes involving naval personnel are not common and it is thought that this report may be of some general interest

Shortly after the end of World War II I was serving in *HMS Roseneath* This was a pleasant establishment on the banks of the Garsloch which had been a training and operational base for landing craft

The skills of this particular branch of seamanship were still being taught and we often had groups of pupils from other navies It so happened that one of these groups consisted of twenty engineers whose status and skills were roughly comparable with those of our own splendid ERA's They were accompanied by four stokers who also acted as their messmen

The engineers were engaged in a long drawn out dispute with their own government which was concerned with their status and pay A position of stalemate having been reached, they decided to put pressure on their government by going on hunger strike while they were serving with us

We felt from the first that this was very unfair and ungrateful behaviour on the part of guests towards their hosts and the Captain lost no time in telling them so in no uncertain terms Moreover no representatives from their Embassy came up to sort things out, so all diplomatic exchanges had to be carried out at long range It must be said however that this indifference shown by the Embassy was in a way a splendid method of taking the wind out of the strikers sails

On the medical side it was indeed an irritating and frustrating experience. I received specific instructions from the Admiralty that on no account was forcible feeding to be undertaken so there was nothing active which we could do After the first few days we began to get a spate of alleged 'collapses' These generally occurred during the night watches After panic stations in the mess deck the medical and nursing staff were turned out and the patient admitted to the sick quarters But once there he resolutely refused to eat though assuring us all that we were the kindly servants of Allah who would undoubtedly get our reward ultimately in heaven Invariably the patient returned to the mess deck at his own request next day

Medical supervision of all the hunger strikers consisted of clinical checking for signs of dehydration (although none of them refused to drink water) and a daily examination of the urine for ketones Only one of them after the first few days, showed a persistent ketosis and he was the only one about whom we were really concerned

The ring leader was a youngish 'sea lawyer' who in some odd way appeared to exercise a very definite influence over the others I formed the opinion however- that there was a certain amount of double crossing going on and that for many of them the hunger strike was not complete

After the first two days no rations were served out to the mess deck concerned We did this because we found that the four jolly messmen were putting the uneaten food into neat parcels and selling them to our own sailors rationing still being in existence

In spite of all this after even a few days the engineers did begin to look haggard and ill A rather swarthy face, if left discreetly unshaven and with rings under the eyes can present quite a pitiable picture especially if the patient wishes to present such a picture in order to gain his ends

The Captain issued orders exhortations and appeals but no notice was taken nor had we any means of enforcing these orders

Finally, after eight days of stalemate I suggested to the Captain that if Mahomet would not come to the mountain we must transfer the mountain to Mahomet He approved this plan which was put into operation forthwith

We booked a complete third class sleeping coach on the night train from Glasgow Central to Euston Without any further warning we advanced on the mess deck accompanied by all the members of the regulating staff and Royal Marines who were available at the time Ranged round the walls of the room, they made a most impressive display of potential force The Captain then informed the engineers that our patience had come to an end and that we were going to transfer them forthwith to an unknown destination

There was considerable dropping of unshaven jaws at this sudden ultimatum and even the young ringleader looked disconcerted for the first time. Their gear was rapidly packed and a convoy of ambulances and other vehicles left for Glasgow The one man with the persistent ketosis was perhaps the only genuine stretcher case and I was beginning to be quite worried about him

Glasgow Central Station is normally a fairly phlegmatic place but we did manage to create a bit of a stir as we carried or helped along towards the sleeping coach our twenty swarthy hunger strikers, mostly dressed in pyjamas and rather expensive looking dressing gowns

A Surgeon Lieutenant and one member of the sick berth staff travelled in the coach My last personal contribution was an inspired piece of Dumb Crambo directed through the window at the ringleader showing him being hanged in the event of the man with the ketosis dying on the way to London

On his return the Surgeon Lieutenant told us of the final stages of the affair The night journey went smoothly The sick man got no worse though he still refused to take any food The train arrived at Euston at about 0730 and on the platform was a dapper young Air Attache from the appropriate Embassy who appeared to have no knowledge whatever about the affair

He was soon disillusioned The Surgeon Lieutenant told him that in the sleeping car were twenty of his fellow countrymen on hunger strike, wished him goodmorning and retired to "breakfast and clean"

We subsequently heard that the man with the ketosis was admitted to University College Hospital I would love to have known what the Air Attache did with the other nineteen but attempts to follow up their ultimate disposal proved fruitless

The Sailor's Surgeon

E. Harper

It is amazing how much experience, adventure and talent some people can pack into one lifetime. Certainly James Yonge's life was never dull. He achieved much, yet somehow never became famous.

In 1647 a second son James was born to Dr Yonge, a Plymouth medical man. After two years at Plymouth Grammar School, James was apprenticed at the early age of 11 for a period of eight years to a Naval Surgeon Mr Silvester Richmond, then serving in *HMS Constant Warwick*, a 31 gun ship with a company of 150. On February 16th, 1658 the child first went to sea, no doubt secretly terrified by his new surroundings.

For the first week or two James was sea sick but once he had found his sea-legs he philosophically made the best of things and even made notes about his experiences. England was at war with Spain, pirates were not uncommon so he had much to write about. He described a five hour naval battle as well as some of the ports at which they called. Boy like, food played an important part in his life – he wrote about Castlehaven, Ireland:

> *"Here we bought hakes of great bigness for three farthings, hens for as much a sheep for 16 or 18 pence. The people are mostly Irish, live in cabins and go very poor in clothes."*

When Cromwell died in 1658, young James described him as "a blustering tyrant" but although a Royalist, he was kept too busy to bother much about politics.

Already experienced in naval warfare, at 13 he became the assistant to a surgeon in a 61 gun frigate. This commission proved so tough he wished he could die, among other excitements he was present when the English ships bombarded pirate headquarters during the siege of Algiers in 1661. Returning to England James wrote:

> *"I weary of so slavish an employ, got to be discharged and having my ticket and but 5/– in my pocket, set off for London."*

His next employment was at Wapping as an apothecary's assistant. The knowledge he gained of medicines and dispensing was to prove very useful to him in the future.

Fortunately for James, the surgeon to whom he had been apprenticed retired after James had served five of the eight years and so he gained his release. His father who never had much sympathy for his second son now made James his apprentice for a further seven years a state of affairs that caused the youth to write "I were wearied and abandoning myself to despair" His appointment as surgeon in the *Reformation*, a small 3 gun vessel with 70 men took him to Newfoundland Having the cold, James dutifully recorded his impressions of all he saw the country flora fauna and customs were all noted down Highly intelligent, he gained much medical experience and began to use his own remedies in treating ailments. He was a pioneer in the treatment of scurvy which he rightly attributed to lack of fresh fruit and vegetables

However in 1665 Yonge and his fellow sailors were captured by the Dutch and suffered the ignominy of being shackled to the deck before being imprisoned in a warehouse in Amsterdam "When they opened the door I saw so many nasty and lousy prisoners and smelt such a stink and felt the heat, my heart was ready to break" After a spell in hospital with fever and following an abortive escape attempt, Yonge was eventually exchanged with a prisoner in Britain and returned to London in 1667, to grieve over the desolation caused by the Great Fire a year earlier

Soon he was off to sea, again sailing to Newfoundland This was his last voyage and on returning to Plymouth he thankfully became a civilian surgeon One of his first cases ashore was so successful that it made his name. A man fell from a mast, broke his shoulder and 'crakt' his skull badly Luckily Yonge healed this patient.

Marriage followed in 1671 Shortly afterwards with the help of influential friends Yonge became the surgeon at the Naval Hospital, Plymouth His salary was 5s daily with an extra 3d. per patient for medicines supplied In time he rose to become Surgeon General to the Royal Navy, for which appointment he was paid 6s 8d for each patient with another shilling a day for victuals

Yonge was an active man and enjoyed journeying round the countryside and to London In 1697 on returning home he had a smallpox outbreak on his hands Four of his children caught the disease and his little daughter, Jenny died But domestic troubles were offset by advancement in his career Treating "the pox" brought in the useful sum of £120 his research into this disease while at sea paid off handsomely ashore.

He was interested in brain surgery and wrote a book "Woundes of the braine proving curable" He found time to be Churchwarden at St. Andrew's Plymouth, but during the Monmouth Rebellion he once more joined the armed forces as surgeon to a local regiment and had "a very severe time of it" treating spotted fever among the men. More fortunately he also cured the Countess of Bath when she developed cholera

Honours followed He became Mayor of Plymouth in 1694 and seven years later a Fellow of the Royal Society During his life Yonge met many famous people and duly summed them up in his journal Extracts read

Madam Eleanor Gwin wife to the King a witty woman James, Duke of Monmouth natural son of His Majesty by one Mrs Anne Walter a brisk notable prince and a good warrior but no politician and illitrate King Charles II whom God preserve"

Did he wisely make no comment on Charles in case his journal fell into the wrong hands?

By his mid fifties he was a wealthy man with a bigger practice than he needed so, sensibly he eased off the pressure of work, although still in demand in his profession In 1707 he was asked to embalm the body of Sir Cloudesley Shovell, drowned when the *Association* sank off the Isles of Scilly For

this he was paid £50, a considerable fee in those days

Over the north door of St Andrew's, Plymouth is a memorial to Yonge put there after his death in 1721 His portrait, resplendent in full bottomed wig and brocade morning gown, hangs in Pusliuch the manor house built by his second son in 1720

A successful surgeon a hard working citizen of Plymouth Yonge somehow never became nationally famous. Yet few men have achieved as much as he did in his lifetime many years of which were devoted to the health and healing of sailors He deserved to be better known

LETTER TO THE EDITOR

Sir

RN medical and dental officers who took part in an attitude survey on smoking habits may be interested in some of the main findings

During March and April 1978 all RN medical and dental officers were requested to participate in a survey investigating smoking habits and attitudes to smoking By May 1978 nine out of every ten officers had returned questionnaires to the Clinical Research Working Party secretarial office at INM The response to the survey, in terms of returned forms was very high in the senior/middle ranks but slightly more participation from the junior ranks would have been appreciated

The study revealed that only 37 per cent of the officers smoked regularly, 24 per cent were ex smokers, and 39 per cent were non smokers A smaller proportion of dental officers had ever smoked in comparison with medical officers with differences persisting in all ranks up to captain Almost all ex and current smokers had begun smoking before enlisting with the RN and the vast majority of these officers stated they had not been influenced in their smoking habits by the availability of "Blue Liners" As few officers start smoking after RN entry, there appears to be a substantial movement towards not smoking at all with the percentage of non smokers decreasing from about 50–60 per cent at lieutenant rank to approximately 20 per cent at commander rank and above

Over one half of current smokers consume tobacco in the form of cigarettes and a further one third smoke a pipe Three quarters of ex smokers were smoking cigarettes just prior to giving up smoking Compared with ten years ago smokers had a tendency to feel less energetic and have more dyspnoea on effort whilst ex smokers indicated tendencies towards worrying more, being more irritable and concerned about weight gain Giving up smoking had some benefits for some officers in terms of an improvement in general health and an increased awareness of taste and smell

Attempts to give up smoking were usually fraught with difficulties, especially with the frequency of naval social gatherings, but fear of ill health (mentioned by 52 per cent of ex smokers) and a monetary saving (43 per cent of ex smokers) were the most usual spurs to success in breaking the habit

Apart from those places in which health is of paramount importance, non ex and current smokers tended to disagree about the places in which smoking should not be allowed The percentages of non and ex smokers agreeing on non smoking areas were similar with about 45 per cent definitely against smoking in MOD(N) committee rooms (smokers — 18 per cent against) 65 per cent against it in public restaurants (smokers — 32 per cent), 70 per cent against it on public transport (smokers — 50 per cent), and 44 per cent against it in submarines (smokers — 22 per cent)

Overall this study of RN medical and dental officers supports the feeling that smoking is on the wane and confirmed smokers will not break the habit no matter how dire the warnings about its dangers The study also suggests that in the near future smokers will find more no smoking areas particularly in public places.

I am, etc.

R.J. Pethybridge
Statistician
Institute of Naval Medicine

BOOK REVIEWS

THE SURGEON'S MATE 1617, JOHN WOODALL. A complete facsimile of the 1617 edition with an introduction by John Kinkup. Pp XXIV 348. Kingsmead Press £8.00

A first rate and bowdlerized version of this book in a flagship in the West Indies nearly thirty years ago. Quotations from it raised many a smile by argument and stood many a glass that in the wardroom. I lost the battered novelties copy at a particularly unruly party at Belize.

John Woodall (1556 1643) was Surgeon at St Bartholomew's (1616–1643) while William Harvey (1578–1657) was Physician at the hospital (1609–1643). Woodall's claim to fame is based on this book which was first published in 1617 and was widely used at sea in the 17th century. The present complete facsimile of the 1617 edition is well produced by the Kingsmead Press — indeed, despite the unredeemed ancient freedom of spelling, the facsimile edition is easier to read than the original from which it has been produced. This book contains in addition some fascinating reproductions of original woodcuts and illustrations including the title page of the 1639 edition, contemporary instruments, and an illustration of a surgeon's chest.

This is certainly the first textbook of guidance for Surgeons on long ocean voyages in sea — published 362 years ago. It contains advice on medical and surgical emergencies and contains one of the best accounts of the complex symptomatology of scurvy even woman, including its treatment with lemon juice, and pharmacological manuscripts on the medicaments of those days. John Woodall's book was published in a time of upsurge in sea voyaging for discovery whose costs and dangers were increased by the limitations imposed by disease and death on the crews of these small ships. This book enjoyed widespread use by ships' captains, surgeons and their mates for many years and further editions continued to be published for some years after John Woodall's death in 1643. Regrettably much of its advice was overlooked in the 17th and early 18th centuries.

John Woodall had followed William Clowes as Surgeon at St Bartholomew's Hospital and both had had military and surgical experience at sea before appointment. Woodall was really the first medical administrator of medical practice at sea as Surgeon General of the East India Company but while he held this appointment he continued a practising and able teacher at the hospital. He preached no operation with nothingness at a time when other surgeons were vociferous inferiors to the Physicians. He was instrumental in abandoning the current method of amputation of gangrenous parts, advocating and practising amputation through the living healthy tissue above the line of demarcation. His patients [illegible] hers died. His recommendations [illegible] sea with an adequate chest of instruments [illegible] medicaments and his instructions guided the [illegible] equipped. His book contains a fund of good [illegible] ding the importance of the Surgeons, [illegible] under to his shipmates and the importance [illegible] m of the keeping of good personal notes and an accurate Journal.

In the present edition an introduction by John Kinkup, a chronology of John Woodall, a list of references and bibliography, a list of the works of John Woodall, a list of recorded owners of the original 1617 edition (12) and an appendix of persons and places mentioned in the text precedes the facsimile reproduction of the 1617 edition.

This book is a fascinating and worthwhile purchase which should provide pleasure and information for years to all medical naval officers who respect the history of their profession and particularly to that a man who take pleasure in the association of their hospital with the sea. It might stimulate someone to write a 20th century version — a mess between a modern Pyes surgical handbook and guidance for medical officers at sea.

JADH

HASLAR THE ROYAL HOSPITAL. A.L. Revell Pp 50 Gosport. The Gosport Society. £1.50

In 50 pages Surgeon Commander Revell has condensed the history of RNH Haslar although the first eight pages treat more with the beginning of the Naval Medical Service. This monograph provides a picture, in miniature form, of the hospital's origins, its finance and its administration. It deals in some detail with its living inhabitants — doctors, nurses and patients. Lastly it gives an impression of the hospital's future purpose and appearance.

Well illustrated throughout it lacks only an artist's impression of what might be.

Its bibliography, though not exhaustive, will hopefully lead other aspiring amateur historians to further useful study. It is a little surprising that John Ashley's reference to Gosport "Where the Seamen lyn" was omitted, but perhaps it was because of his other comments about the locals: the Towne is full of wanton wenches and (they say) scarce 3 honest women in the Town.

To those medical officers who have done rounds in the Attics and elsewhere and to that small band who assembled to watch the unveiling of the bicentenary commemorative plaque in 1953, this contribution will bring back many memories. To all it is highly recommended.

COH

AN ATLAS OF RADIOLOGICAL ANATOMY Jamie Weir & Peter Abrahams Pp 288 Tunbridge Wells Pitman Medical Publishing Co Ltd £15 00

A well produced atlas of radiological anatomy for the undergraduate and the student of radiology and a useful reference book for X ray departments undertaking teaching and employing non consultant radiological staff

Incidentally it provides a quick reference of the information available on anatomy by the various specialised radiological techniques including myelography arteriography venography phlebography lymphography angiography gastrointestinal radiology uro genital radiology and what is listed as miscellaneous radiological techniques — computerised axial tomography dacrocystography mammography xerography retroperitoneal insufflation and sialography A lot in a small compass with an detail of the techniques

There is a useful bibliography with suggestions for further reading and the vital reproductions of X rays and the explanatory line diagrams are well reproduced.

A useful book and good value for these expensive times

JABH

ESSENTIALS OF RADIOLOGY P M Breitland. Sevenoaks Butterworth Group £8 95

This is an excellent thoughtful experienced and expert review of the essentials of radiological interpretation and deserves study by most practitioners of medicine even if they rely on the Consultant Radiologist a interpretation and report on the diagnostic imaging investigation of their patients and particularly if they have not received undergraduate teaching in the scope of radiology

It is a full undergraduate text on the interpretation of plain X ray radiographs It will not lead to mastery of the art of radiological interpretation but will form a basis for the understanding of that art and for students of radiology will form a basis for acquiring that art in conjunction with practical teaching practice, and supervised experience

A good book by an experienced radiologist and an enthusiastic teacher

JABH

YEAR BOOK OF DIAGNOSTIC RADIOLOGY 1978. Edited by Walter M Whitehouse Pp 400 London Yrb Medical Publishers Ltd £22 50

There is no British equivalent of the American annual review which in this edition covers literature reviewed up to May 1977 The pace of advance is now rapid but the review and its grouping is useful with chapters on technical developments, angiography neuroradiology spine and extremities chest genitourinary tract gastro intestinal tract paediatric radiology and ultrasound

It thus forms an over view and literature review useful to the radiologist in fields outside his special interest and a source of reference to physicians and surgeons in search of particular information.

The technical developments are probably of most general interest in a review of the book without a detailed critique of what is included or omitted in each of the designated review fields though the inclusions excite the omissions

Computed axial tomography advances, and the EMI scanner becomes faster and more definitive as its competitors produce variants on Geoffrey Hounsfield's brilliant innovation in the use, focus and display of the X ray beam New isotope emission scanners employing axial tomography are being developed. Advances and innovations of ultrasound are well documented. It is surely time that clinical radiology is recognised for what it is — clinical diagnostic imaging.

The book is recommended to medical libraries and radiologists

JABH

AN ATLAS OF NORMAL DEVELOPMENTAL ROENTGEN ANATOMY Theodore E Keats & Thomas H Smith Pp 301 London Yrb Medical Publishers Ltd £53 00

This is a most unusual book in that apart from the preface there is no text or annotations It consists of a vast compilation of illustrative radiographs which depict normal growth in the male and female from birth to 25 years The first two years are illustrated at three monthly intervals and thereafter yearly

In diagnostic radiology a knowledge of normal appearances is fundamental before a diagnosis of pathological conditions can be considered To attain this for every age group could take a lifetime of radiological experience This book attempts to provide a ready reference Even so the authors admit that many years of collection and searching of files still leaves omissions in some of the age groups.

The quality of the radiograph reproductions is excellent overall The majority of the radiographs are skeletal They represent the average appearance of each age group and do not indicate accurate measurements Endrographs of other anatomical appearances, in particular those of the chest are small and the subsequent loss of detail detracts from their value. The attempt to illustrate barium and other contrast examinations may also be questioned There are many examples of cystograms but few demonstrate micturition

A bold attempt has been made to provide a ready reference in a single volume Despite some drawbacks a dependable copy would be an advantage

EWP

ATLAS OF ROENTGENOGRAPHIC MEASUREMENTS Lee B Lusted & Theodore E Keats. 4th edition Pp 334 London Year Book Medical Publishers Ltd £31 00

This compilation of radiographic measurements is a useful additional tool in an X ray department. It provides a handy source of information in a small compact volume and thus removes the necessity to search through larger textbooks and journals for a reference

Some of the data given would at first sight appear to have been gathered for the sole purpose of producing a paper without reference to practical application However the apparent inconsequential may be of diagnostic value

The format of paragraphs for radiographic technique measurement and source of material is logical and in this edition Line drawings are used to demonstrate the mode of measurement. A disadvantage of such a volume is that very good eyesight or a magnifying glass is required to read the vast amount of data presented in some of the tables and graphs

There have been no deletions from the previous edition published six years ago These are 50 new entries but it is disappointing that so few apply to computerised tomography or ultrasound

EWP

A PRACTICE OF ANAESTHESIA Wylie and Churchill Davidson. Edited by H C Churchill Davidson 4th edition Pp 1547 London Lloyd Luke (Medical Books) Ltd £26 00

A new edition of Wylie and Churchill Davidson is always welcomed by anaesthetists anxious that the formal or format will be there, modified and updated to reflect the advances in knowledge and the changes in emphasis that have taken place in the preceding five years

This fourth edition has its predecessors, gives a comprehensive and readable account of British anaesthetic practice. A section is devoted to each of the main body systems and, after an excellent account of the relevant anatomy physiology pathology and pharmacology, a balanced review of the available anaesthetic techniques is given Quite correctly no effort is made to describe the techniques in minute detail That information can seek elsewhere

An indication of the general level of the book would be to say that it contains the type of information that should either be known to a consultant anaesthetist working in a general hospital or be readily available to him This this happens to anticipate the FFARCS in requirements is perhaps not too surprising Curiously the reviewer has used the book full four editions in fact extensively for both teaching and examination purposes and is an unashamed devotee

Inevitably the book will find its way into general medical libraries and some they have made to be quantitative workers in allied disciplines such as applied physiology nursing and respiratory medicine and intensive care will find it of considerable value

Like any successful textbook Wylie and Churchill Davidson has evolved over the years The first edition was largely the work of Wylie and Churchill Davidson themselves with some assistance from colleagues at St Thomas's Hospital

Subsequent editions showed an increasing use of specialist contributors and in the latest edition all but one chapter has been written by one or other of the eighteen associate editors. Dr Wylie has had to withdraw because of other duties and the overall editorial responsibility now falls solely on Dr Churchill Davidson He is to be congratulated not only on maintaining the original style of the book but also in maintaining it at the same size and, indeed, all in one volume

Although it may have added a little to the cost, the publishers were wise to continue to have the book printed on good paper and strongly bound by Hazell Watson & Viney Previous editions have proved very robust

The price of £26.00 for a book of 1500 pages that will last five or so years cannot be criticised by today's standards and it is not unreasonable to compare it favourably with the current cost of attending lecture courses.

RR

PHARMACOLOGY OF THE EYE. Pauline Thomas Pp 130 London Lloyd Luke (Medical Books) Ltd £3 30

This is a small well designed handbook which collates information on a subject not easily found elsewhere in the ophthalmic literature Principles of pharmacology are concisely outlined in the first chapter covering absorption transport, metabolism and excretion A similar chapter on drugs used in the visual mechanism and estimation follows with a final chapter on the mechanism of systemic and topically applied drugs and their side effects The glossary of pharmacological and ophthalmic terms used in the book will undoubtedly be dense appeal The author's outlook is, of course that of a pharmacist and it is not surprising that he tends to find a few minor points of procedure which jarring with ophthalmic practice. In particular I should be mind that fluorescein strips must not be "wiped across the normal" for obvious reasons and that the argument of BJO (topic is Professor Barry James

AJR

DECOMPRESSION SICKNESS. Vol I Brian A Hills Pp 322. Chichester John Wiley & Sons Limited £14 00

In view of the subtitle of this book, The Physical Basis of Prevention and Treatment" the world his reader might reasonably assume that it deals with the theoretical aspects of decompression sickness This is not the case and these aims deviations are left to the yet unpublished volume 2

What this book does contain is a very detailed non-sectarian of the features involved in the aetiology of decompression sickness. The author is well known for his individual views on decompression theory. He represents one school of thought using mathematical modelling in an attempt to rationalise the complex, often bizarre reaction of tissues to compression and decompression That the full aetiology and pathology of decompression sickness remains a subject for debate, often heated is a valid reason for the purchase of this book for it enables the reader to follow at least the side of the argument

While it is unfairly not within the reviewer's expertise to challenge some of the theories advanced there is sometimes a sinking suspicion that the pathology of decompression sickness (as opposed to the physiology of safe decompression) is, on occasion moulded to fit the theory It must be fantastically frustrating to those who model physiological processes to encounter pathological processes which introduce sufficient unknown or intolerable variables as to return mathematical modelling to an instant and speculative process.

In the nature of the final chapter the author presents his "credo" which in this case consist of eighteen tenets These are used to support his contention that he has produced a model that allows optimisation of decompression and a quantitative prediction of the results of decompression that was not optimal by his criteria As the author allows that not all his eighteen points may ultimately prove valid, it is best to leave them and validly unchallenged

The book opens with three well written chapters on the fundamental aspects of hyperbaric physiology and these chapters form a basis for the development of the author's theories in subsequent chapters.

All in all it is an interesting and challenging book, the success of which can be measured by the interest with which the next volume is awaited It is clearly for knowledgeable students in the field of decompression theory and if they disagree with some of the theories advanced they should be aware that it is a field wherein no one agrees with any concepts other than his own However it is a fiercely battle conducted by civil sod opponents If you wish to join it this book really is an essential part of your armament.

RRP

RN MEDICAL AND DENTAL OFFICERS

NEW YEAR HONOURS 1979

Commander of the Order of the British Empire

Surgeon Commander J K Quiff

Member of the Royal Victorian Order

Surgeon Lieutenant P A

HIGHER QUALIFICATIONS

Surgeon Captain M C H Jackson — FRCOG
Surgeon Captain J H Sewart — MFOM
Surgeon Captain P J T nestale — MFOM
Surgeon Commander D W D Evans — FRCOG
Surgeon Commander J M Young — MFOM
Surgeon Lieutenant Commander C J Churcher Brown — MRCPsych
Surgeon Lieutenant Commander W M Edmondstone — AFOM
Surgeon Lieutenant C C Hunter — DFM
Surgeon Lieutenant P J Shouler — FRCS

PROMOTIONS

To Surgeon Lieutenant Commander
F M K Millard R A Moody K C O O'Neill

To Surgeon Lieutenant Commander (D)
D F Graham J F Hawkins C M Patterson

To Surgeon Lieutenant
I K Ritchie

To Surgeon Lieutenant (D)
R A S Baxter P Hodgson S L Reeves
N R Sinigeon

To Acting Surgeon Lieutenant
A C D Renouf A Quaife S J Squires

Provisional selections for promotion to date June 30 1979:

To Surgeon Captain
F P Beck D A Carmichael R Radford

To Surgeon Commander
W M Abbott C W Evans A H Osborne
T G Shield

To Surgeon Commander (D)
L C Langan

NEW ENTRIES

Surgeon Lieutenant Commander C R Kershaw
Surgeon Lieutenant Miss N A Pool
Surgeon Lieutenant (D) Miss A P McGuiness
R M Stevenson
Surgeon Sub Lieutenant V J Harten Ash
J M Neary D R D Roberts N S Sandhu
Surgeon Sub Lieutenant (D) Miss J D Jenkins
C R Friedland

TRANSFERRED TO FULL CAREER COMMISSION

Surgeon Lieutenant (D) D L. Thomas

TRANSFERRED TO 16 YEAR MEDIUM CAREER COMMISSION

Surgeon Lieutenant Commander G L. Robertson
Surgeon Lieutenants P J Shoulet J C D Turner

TRANSFERRED TO 8 YEAR CAREER COMMISSION

Surgeon Lieutenant (D) D C C Alexander

RETIREMENTS

Surgeon Captain J D Stewart
Surgeon Commander F P M Browne
Surgeon Commander D M Davies OBE
Surgeon Commander J S Sontar
Surgeon Commander (D) K R Needham

RELEASED FROM SHORT CAREER COMMISSION

Surgeon Lieutenant Commanders P H Gibson
R G C McKinlay
Surgeon Lieutenants C G Dixon R W Harvey
D G L Pickering
Surgeon Lieutenant (D) R M J Owen

MEDICAL SERVICE OFFICERS

NEW YEAR HONOURS 1979

Associate of the Royal Red Cross
Fleet Chief Medical Technician D Johnson

PROMOTIONS

To Acting Sub Lieutenant
D J Golding

RETIREMENT

Lieutenant L T Martin

QUEEN ALEXANDRA'S ROYAL NAVAL NURSING SERVICE

NEW YEAR HONOURS 1979

Associate of the Royal Red Cross
Superintending Sister Miss H E J Gillespie
Miss E Meikle John Miss M E Williams

PROMOTIONS

To Matron:
Superintending Sister Miss P M Graystone

To Superintending Sister:
Miss J Massey Miss L J Richards

ROYAL NAVAL RESERVE

PROMOTIONS

To Surgeon Lieutenant Commander
W M Luke

Provisional selections for promotion to date June 30 1979

To Surgeon Captain (D)
H K Kemp

To Surgeon Commander
J C Sharp H Simpson

RETIREMENT

Surgeon Lieutenant Commander T K Abbott

EMERGENCY SURGERY Edited by H A F Dudley 10th edition Pp 1017 Bristol John Wright & Sons £25 00

With the ever-evolving and increasingly complex development of surgical practice it is evident that the era of the single author textbook of surgery is past.

In this 10th edition of Hamilton Bailey's Emergency Surgery Professor Dudley and his contributors have fulfilled the aims and preserved [illegible] the [illegible] and indelible imprint of its original author. Like its predecessors this edition is simple, direct and [illegible] With [illegible] on [illegible] patient and [illegible] planning of the text all the topics [illegible] are presented again.

The [illegible] chapter on [illegible] planning organisation [illegible] will [illegible] of our urban [illegible] roads [illegible] yet another dimension has been [illegible] the practice of malignant surgery. This [illegible] both the surgical trainee and [illegible] responsible for the care and [illegible] surgical patient.

The book [illegible] find [illegible] place on the book [illegible]

ACB

AN INTRODUCTORY TEXTBOOK OF MEDICINE J J Cannon Pp 373 London Lloyd Luke (Medical Books) Ltd £4 75

The author states that his intention is to give a bird's eye view of medicine, primarily for the medical student embarking on clinical studies but also for nurses, physiotherapists and radiographers. In this difficult task he has succeeded, covering the subject with clarity and in fair detail in a little over 350 pages.

The subjects are covered by systems, and each disorder is described logically from definition through pathophysiology, clinical manifestations, diagnosis, treatment and prognosis. The result is a clear impression of what is being described with perhaps more thorough detail than might be expected from such a book. There is a useful appendix of tests covering [illegible] and manifestations of common disorders.

This is a practical and readable primer of medicine, presented with clarity, and should provide a useful [illegible] pre-clinical and clinical studies.

AJL

HANDBOOK OF LEPROSY W H Jopling, 2nd edition Pp 139 London William Heinemann Medical Books Ltd £3 75

Leprosy is a fascinating infection for [illegible] dependent upon the immune capability of [illegible] To study it therefore is not only to learn [illegible] the disease but also to take an object lesson in immunology. This excellent second edition of a book whose first edition was widely proclaimed as an authoritative statement about leprosy is written by one of the leading workers in the field and is completely up to date. No membership candidate can afford to miss the opportunity of studying this short text and the 20 colour plates, which may prove invaluable to him in the examination. For everyone else it provides a stimulus to immunological thinking that could change concepts of disease in their own fields.

PDC

YEAR BOOK OF NUCLEAR MEDICINE Edited by James L Quinn III Pp 390 London Year Book Medical Publishers £21 25

The 1978 Year Book of Nuclear Medicine continues to be one of the most useful review books of the many nuclear medicine articles appearing in print during the preceding year or two. One of its greatest attributes is the scope and depth of coverage revealed, including many international and foreign journals seldom read by those in the nuclear medicine field. This survey is perhaps the most important feature of the Year Book. A [illegible] often serves to highlight work which would be missed by those who read the standard nuclear medicine journals.

The quality of the abstracts remains good, containing pertinent concisely stated information, enlivened by the editor's occasional pithy comments. Articles worthy of more detailed study are indicated but it is sometimes difficult to gauge the quality of others. A system for grading original articles in descending order of importance would certainly be of use in this context.

The overall subject matter and topics covered are adequate although understandably in such an extensive review some subjects may appear in insufficient depth for those tending to specialise in certain aspects of nuclear medicine. Be that as it may, the bibliography remains excellent and the primary purpose of reviewing all the pertinent literature has been achieved once again.

This Year Book maintains the high standards of its predecessors and can again be recommended for nuclear medicine physicians and those clinicians who use and maintain a special interest in nuclear medicine techniques.

MAM

EXPEDITION MEDICINE A PLANNING GUIDE. R N Illingworth 2nd edition Pp 32 Brathay Hall Trust Ambleside Cumbria £1 00

If you have ever been approached by some enthusiastic expedition leader requiring advice to take [illegible] some trip into the wilds [illegible] would you make up a small first aid kit for them? Don't — then this little book is an excellent companion for your library and will save you a considerable amount of thinking time.

The booklet does not contain information which is unfamiliar to the majority of Service medical officers but it assembles within its 32 (14 × 21 cm) pages the basic fundamentals of medical advice for expedition leaders. The 34 references in the bibliography will provide a useful starting point for the individual who must [illegible] to expand his knowledge on some specific points.

There is an excellent section on the recommended contents of first aid kits for various types of expedition, which again would serve as a very useful basis on which to build one's advice.

For the £1 00 cost (including postage) I would thoroughly recommend this little book to all Service medical officers who may be called upon to give advice to expedition parties from ships and establishments.

FSICG

SERVICE NEWS

OBITUARIES

SURGEON COMMANDER (D) M.J. SWANN, MSc BDS RN died on 3-[illegible]-1979 at the age of 39.
RSH [illegible]

Mike Swann was born in 1939 in Strabane, Northern Ireland, educated at Coleraine Inst and the Queen's University of Belfast from which he graduated BDS in July 1962.

After a year in general practice he joined the Navy as a Surgeon Lieutenant (D) in 1963 and following Officers' Dental Course and a brief spell in *HMS Collingwood* he was appointed to *HMS Albion* just prior to a lengthy East of Suez deployment.

On returning to the United Kingdom Mike was appointed to *HMS Sea Eagle* in Londonderry and during three years there he met and married Angela, transferred to a permanent commission, was selected to represent the Royal Navy at golf and in July 1967 was promoted Surgeon Lieutenant Commander (D).

On moving to Singapore and *HMS Terror* in 1970 he took over the title of the Far East Naval Golfing Society and became vice captain of the Sembawang Golf Club. He performed these extra ministerial duties so effectively that following the closure of *HMS Terror* in 1971 several thousands of dollars were available for transfer to the new country club at *HMS Dryad*.

During his next appointment with the Royal Marines, Mike found time not only to render dental treatment to the recruits but also to represent the Royal Navy in golf on a regular basis against the Air Force, Army and numerous counties.

In 1975 Mike returned to the academic environment where he read for a Master of Science degree in prosthetic dentistry at the University of London and the same year he was promoted Surgeon Commander (D).

Following the Masters degree, he was appointed to *HMS Nelson* to oversee the dental laboratory and to solve the problems of prosthetic patients referred from the various outlying establishments.

As recently as July 1978 Mike was representing Portsmouth in the intercommand golf championships in Deal but by this time he was beginning to show signs of ill health.

He was admitted to Haslar for investigation in October and tragically died following a short illness borne with incredible courage, fortitude and cheerfulness.

Mike will be remembered as a fun loving, charming Irishman who was a first class dentist, a very talented sportsman and an irreplaceable messmate. The Navy and more specifically, the Dental Branch can ill afford to lose such a personality — he will long be missed.

SURGEON CAPTAIN (D) D.M. PAGE, BDS RN Retd died suddenly in [illegible] on 18 1979. An obituary will be published in the issue of the Journal.

SURGEON COMMANDER DENNIS W. PRATT, MB BCh RN Retd died in January 24, 1979 at the age of 68 years. An obituary will be published in the next issue of the Journal.

SURGEON CAPTAIN K.W. MARTIN, VRD (Clasp) MA MRCS LRCP MRCGP RNR Retd died at the Western Hospital, Southampton, on September 17 1978 at the age of 69.

Kenneth Waddell Martin qualified at St Bartholomew's Hospital and his association with the Royal Navy began in 1931 when he joined the RNVR as a Surgeon Sub Lieutenant. His wartime appointments included *HMS Dreadnought*, *Cabot* and *Corfu* and he was released as a Surgeon Captain in 1945 having been awarded the VRD with clasp. In 1948 he rejoined the RNR and was appointed Honorary Physician to the Queen in June 1960.

Dr Martin was in general practice in Bournemouth for many years. On his retirement in 1970 he moved to Maidenhead where he was active in church circles and also indulged his love of sailing.

He is survived by his wife and two daughters.

SURGEON LIEUTENANT COMMANDER J.K. BLACK, VRD, MC, BCh BAO FFARCS FFARCSI, DA, RNVR Retd. died suddenly on November 9 1978 at the age of 63.

James Knowles Black graduated at Queen's University Belfast in 1941 and shortly afterwards entered the Royal Naval Medical Service. His appointments included *HMS Pembroke*, *Victory*, *Varbel* and *Exmoor* and he was at Dieppe. He transferred to the London division of the RNVR in 1947 and was placed on the retired list in 1960. Service at a midget submarine base stimulated his interest in respiratory problems and led to his subsequent career in anaesthetics. He was consultant anaesthetist to North Wales from 1952 until his retirement in 1978. Dr Black is survived by his wife Margaret.

VISIT OF CHINESE MEDICAL DELEGATION

Surgeon Rear Admiral [illegible] on QHP and Surgeon Captain C O [illegible] QHP with officers of the Chinese Medical [illegible] on the occasion of their visit to the [illegible] Naval Medicine in November 22 1978

[illegible] OBE QHS [illegible] presentation [illegible] at meeting R [illegible]

THE GILBERT BLANE MEDAL 1978

Surgeon Vice Admiral Sir John Rawlins KBE QHP presenting Surgeon Commander R H Hunt with the Gilbert Blane medal for his thesis on colonoscopy in clinical practice The award was made at the Council Meeting of the Royal College of Surgeons on January 11 1979

AWARD OF HARBEN GOLD MEDAL TO SURGEON CAPTAIN T. L. CLEAVE, RN Retd

B[illegible] F. H[illegible] [illegible]

Surgeon Captain T. L. Cleave RN (Retd) is being awarded the Harben Gold Medal of the Royal Institute of Public Health and Hygiene in recognition of [illegible] services rendered to the public health. This is a [illegible] prestigious award and Captain Cleave will be the first naval medical officer so honoured.

The H[illegible] Gold Medal is [illegible] The Harben Fr[illegible] in 1904 by the late Sir Henry Harben [illegible] Most [illegible] the Worshipful Company [illegible] Previous Gold Medallists [illegible] Lord Lister, Lord Lister, R. Bud K[illegible] M. Mitchinkoff, Lord Adrian and M. [illegible] Fleming and the 1978 award [illegible] Richard Doll.

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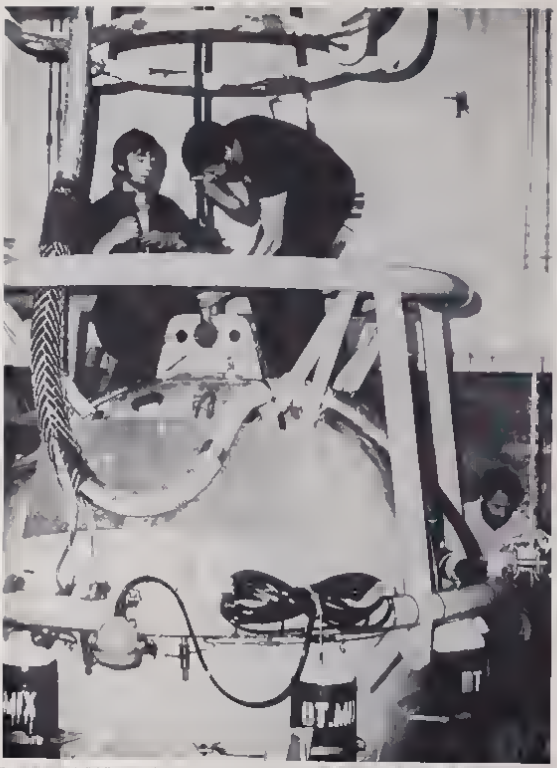
Journal
of the
Royal Naval Medical Service

FRONTISPIECE — MV Seaforth Clansman

MV SEAFORTH CLANSMAN



Recovery of the bell following a diving operation in MV Seaforth Clansman. With [illegible] the Royal Navy now has a 300 metre diving capability. Although manned by the Merchant Navy the diving system is run by an RN team comprising one diving officer and 14 divers

Editorial

Thoughtful readers of these jottings — if only needs a few — will have meandered through some of the problems and the long term objectives of medicine and the Medical Service of the Navy Beside the mainstream lie the marshes — relics of the well tended water meadows of the past

In 1975 the Navy introduced a voluntary physical training programme in order to raise the general fitness of ships' companies Its objective was to improve the effectiveness of naval personnel based on the supposition that personnel were not fit enough for hard work as may be needed in an emergency that their affectiveness in non physical tasks would be enhanced and resistance to stress and unusual demands was likely to be improved by a general feeling of well being engendered by improved physical fitness These sentiments and objectives are admirable but there is insufficient scientific rigour in the definition of the problem We are not alone all Armed Services have the problem and indeed there is not yet agreement on what is meant by fitness The response to the voluntary training programme has not been satisfactory with too few volunteers and too low general standards and the problems are therefore how to achieve a higher level of physical fitness and how to know — perhaps by testing — whether a sufficiently high standard of fitness has been achieved by improved physical fitness

The Medical Director-General (Naval) has re-established the Royal Naval Personnel Research Committee Physical Fitness Sub Committee under a new chairman Professor Linden to advise the Navy on its problems of physical fitness This sub-committee (PFSC) consists of expert research workers in this field and research workers from the Army Personnel Research Establishment (APRE) and the Institute of Aviation Medicine (IAM RAF) and the Service establishments are associated with their French counterparts through an international collaborative agreement

Physical fitness has been discussed by a Research Study Group of NATO[1] and this group recommended

(1) *The reliable method of measuring physical fitness is by direct measurement of VO_2 max and there should be in each Nation a centre or centres in which this measurement can be conducted*
(2) *Pending agreement of a standard NATO indirect method of physical fitness assessment each Nation s preferred method of indirect VO_2 max estimation (including field tests for large groups) should be calibrated by the direct method*

It is envisaged that several equal indirect methods, timed run step test etc will finally be recommended

MDG(N) in endeavouring to meet the Navy s wishes to achieve the objective of enhanced fitness is concerned that any tests applied on a large scale or any training programme should be safe and should not lead to deaths associated with exercise

Indeed, such accidents resulted in a Naval Working Party being established in 1976 though its recommendations in 1978 were not accepted

In 1978 extended physiological facilities were approved for the Institute of Naval Medicine but due to delays in the rebuild programme the new laboratories are not yet completed But INM intends to establish for the Navy a centre as recommended by the Research Study Group Initially test equipment has been installed with the Physical Training School at *HMS Temeraire* In fact, this co-operation with PT instructors in starting to compare tests of physical fitness is proving valuable in itself The objective is to compare directly measured VO_2 max using a treadmill with VO_2 required for current sub-maximal tests in order to test the predictive value of submaximal testing Professor Davies of the PFSC is advising on the detail of the testing techniques and the skills are being acquired Calibration of the equipment is taking place prior to attempting direct measurements of VO_2 max

These research studies are in an early stage but we have made a start on a problem which the Medical Service has put in the too difficult tray for too long

The cynic will say we will never leave the well tended meadows at the side of the mainstream but INM hopes to help to achieve enhanced fitness In our limited initial objectives we will co-operate with other research establishments, particularly the French The immediate objective is a practical scientifically valid, field test then a safe training programme Once the programme is established as safe and effective testing may not be necessary

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1 NATO Defence Research Group Panel VIII Research Study Group 26 May 1978

Treatment of Air or Oxygen/Nitrogen Mixture Decompression Illness in the Royal Navy

K R Pearson and D. R. Leitch

During the last three years no attempt has been made by members of the Underwater Medicine Department of the Institute of Naval Medicine to revise guidelines for the treatment of decompression illnesses requiring therapeutic compression (i e decompression sickness and arterial gas embolism) Whilst this exercise has involved saturation and sub saturation oxygen/helium diving it is from air and oxygen/nitrogen diving that the greatest number of accidents arise In particular sports diving accidents requiring treatment or advice from the Institute of Naval Medicine are slowly increasing and currently number about 50 per year with approximately 80 per cent occurring in the months between May and October

Much of the treatment of decompression illnesses is empirical and will remain so due to the difficulty of obtaining entirely suitable animal models for research, and the impossibility of establishing controls on which the success of therapy can be assessed Empiricism particularly abounds in the use of adjuvant therapy and there is much less controversy over the use of pressure and oxygen as the fundamentals upon which compression therapy is based The revisions attempt to enhance the chances of successful therapy by emphasising simple criteria to assist the important initial selection of a therapeutic compression table The variety of tables available for therapy is potentially endless as various combinations of pressure and oxygen are tried However it has always been policy at the Institute of Naval Medicine to teach that the treatment depth and time spent there are the important features of any therapeutic compression table Subsequent decompression is best regarded as a means of returning a patient to normal pressure without worsening his illness or creating decompression illness *de novo* It is recognised that active therapy is however possible during decompression by adding periods of breathing oxygen or oxygen rich mixtures

Although the philosophy behind the revisions has been in use for almost four years it is on the basis of this use that the BR 2806 has been amended to include new tables and new guidelines for treatment

Therapeutic Tables — Table 1

Two new tables are added to the previous list of tables in BR 2806 whereas two tables have been deleted (RN Table 51 which was a 30 metre air table, and RN Table 81 which was an in water therapeutic table) The new tables are RN Table 63 which is identical to USN Table 6A and RN Table 73 which was developed for use in the Submarine Escape Training Tank *HMS Dolphin* and is a modification of RN Table 54 involving a slow bleed type decompression from 18m to the surface which, in practice, is carried out in 0 5m

TABLE 1 *Royal Navy therapeutic compression tables*

Table	Treatment depth	Time at treatment depth	Breathing mixture	[illegible]	[illegible]
[illegible]	50m	30 mins	Air	[illegible]	A[2]
53	50m	30 mins	Air	[illegible]	[illegible]
54	50m	120 mins	Air[1]	[illegible]	[illegible]
55	50m	120 mins	Air[3]	[illegible]	4[2]
61	18m	45 mins	Oxygen	[illegible]	5
63	50m	30 mins	Air/Oxygen[2]	[illegible]	A
71	70m	30 mins	Air[4]	[illegible]	
7	50m	120 mins	Air[4]	[illegible]	
[illegible]	50m	120 mins	Air[1]	[illegible]	

1 *RN Tables differ slightly from their USN counterparts in that (a) descent time is not included in elapsed time (b) [illegible] 10m [illegible] been stops is 5 mins as against 1 min and (c) the 3m stops in RN Tables 52 and 53 are only 2 hrs as against 4 hrs in USN Table 2A only*
2 *RN Table 54 includes periods of oxygen breathing at 9m 6m and 3m*
3 *RN Table 55 is intended for use when oxygen is not available It is identical to RN Table 54 up to the 9m decompression stage*
4 *Periods of oxygen breathing may be added to RN Tables 71 72 and 73 at the discretion of a suitably experienced medical officer*
5 *RN Table 63 involves 30 mins breathing air at 50m followed by decompression to 18m where oxygen breathing [illegible] ups*
6 *RN Tables 71 and 72 involve gradual bleed type decompressions*

increments RN Table 63 is intended to be used only for cases of arterial gas embolism whereas its USN counterpart (USN Table 6A) is not infrequently used for treatment of decompression sickness

No excuses are offered for this illogical system of numbering and it is hoped that it will be revised in accord with a NATO standardised numbering system which is being considered

Experience with Treatments

Fifty cases of air divers with definite decompression illnesses have been analysed Not all these cases were treated by the RN at first hand and in several cases considerable delay and/or complications had occurred before advice was sought Decompression illnesses arising from experimental diving are excluded

Clearly the number of cases is too small to allow firm conclusions but some expected trends are present and some insights available

The breakdown of the cases is shown in Table 2 and the onset times and delays to treatment are shown in Table 3 These tables are unremarkable apart from the relatively high incidence of arterial gas embolism as compared to other published series of case histories of decompression illnesses This feature is in part due to the inclusion of five cases consequent upon submarine escape training and partly to an

TABLE 2 *Cases analysed*

Arterial gas embolism	ARG	[illegible]
Non [illegible] DCS	[illegible]	11
	[illegible] possibly [illegible]	[illegible]
TOTAL		50

Table 3 Interpretation of clinical presentation

[illegible]	RN	[illegible]	[illegible]	[illegible]
[illegible]	5	20		1
[illegible]	4	2	0	[illegible]
TOTAL	9	22	1	1
Delay [illegible]	5	5	[illegible]	2
[illegible]	2	1	[illegible]	1
[illegible]	1	1		1
[illegible]	0	1		1
TOTAL	0	[illegible]	1	1

increasing incidence of sports diving incidents involving use or more correctly, mis use of buoyant life jackets. Otherwise these tables are entirely in accord with the other published series and a survey of 200 other cases treated by the RN over the past ten years

Table 4 gives an interpretation of the validity of the various treatments employed based on the new rules Other pertinent facts are included It is of note that there were six apparent spontaneous initial recoveries before therapy could be given These recoveries were to the point of resolution of symptoms and in two cases resolution of signs This finding probably more common in arterial gas embolism than decompression sickness is a little surprising Five of the six cases were in any event treated and the one case not treated (a case of decompression sickness) relapsed after an interval of 12 hours and required treatment Experience suggests that such a relapse is more likely than not unless treatment is given

Five cases of decompression sickness and two cases of arterial gas embolism were still seriously disabled and unable to walk on completion of initial therapy All were subsequently able to walk unaided Further hyperbaric oxygen therapy and intensive physiotherapy formed the basis of their treatment after initial therapy

Table 5 analyses the treatment of arterial gas embolism That six cases were incorrectly treated is testimony to both the occasional difficulty in diagnosing this condition and failure to appreciate its significance Of the total of 17 cases treated only three had not recovered after 25 mins at 50m This point is of some significance as it is at that point that a decision has to be made as to whether to employ RN Table 63 or RN Table 73 Of these three cases one involved a delay of 29 hours one had incorrect initial therapy, and the third was an unusually severe case

Table 4 Interpretation of Table [illegible]

Correctly treated [illegible]	0
[illegible]	0
Wrong treatment begun	1
Wrong treatment [illegible] followed	4
[illegible]	1
Spontaneous [illegible] AGE [illegible]	1
[illegible] DCS	1
Complete [illegible]	5
[illegible]	1
[illegible]	5

Table 5 Treatment of [illegible] embolism

Treatment	Correct	Correct but delayed	Incorrect	Adverse	Recovery [illegible]
Correct	1	1	10	1	
61	1	5			
73	1		0	1	
1					
72		1			
Incorrect	0	5			
None					
153		2	1		
16					
Total	1	0			

1. *Includes one left with minimal symptoms by the start of treatment*
2. *29 hour delay to treatment Extra O_2 at 9m Surface with severe signs*
3. *Had mild headache for some hours after recovery of sight*
4. *Reported in Miller et al 1978 Lancet 22 July 169-171*

All three of these cases eventually involved modifications of standard therapy one to the point of changing to an oxygen/nitrogen saturation mode to counteract pulmonary oxygen toxicity

The five cases treated on RN Table 63 surfaced without problems as did the four cases treated on RN Table 73 These four cases would in fact have been candidates for RN Table 63 but arose from submarine escape training where use of RN Table 73 is the prevailing rule

More than half the cases received steroid therapy the remainder amounting to those initially incorrectly treated or those who were treated despite apparent resolution of signs and symptoms Despite incorrect initial therapy which in the cases reviewed had occurred before RN advice was sought five of the six cases responded fully to compression therapy This reflects the fact that four of the five cases showing a full response had early treatment with some form of recompression

Oxygen and Minimal Pressure Therapy of Decompression Sickness

Twenty-eight cases are shown in Table 6 of which three were initially wrongly treated Two of these three cases were cured in any event One additional case had spontaneously recovered when first seen but required treatment 12 hours later A similar case showing apparent spontaneous recovery was treated as a precaution

Six of the 28 cases can basically be classified as mild and as such were successfully treated on RN Table 61 However all six cases had suggestions of more serious decompression sickness in the form of vague headache costal margin pain, backache and subjective sensory changes

The 22 serious cases responded as follows to RN Table 62 Five cases involved extension of RN Table 62 with extra oxygen breathing periods

Cure by 10 mins — 43% (n = 9)
Cure by 45 mins — 57% (n = 12)
Cure by surfacing 67% (n = 14)
Surfaced with mild symptoms — 6
Surfaced with major signs — 2

The five cases treated with extra oxygen breathing were cases not cured by 45 mins Another five cases which had not been completely cured by 45 mins did not receive extra oxygen although in two cases this was not practically possible

TABLE 6 — *Results of treatment of decompression sickness with O_2 as first action*

	Cases	Cure by 10 min	Cure by 45 min	Cure by surface	Symptoms at surface	Signs at surface	Adjuvant R	Relapse	Air Follow up	Repeat O_2 R
Presenting cases	28	14	16(4)	19(4)(-1)	14(4)	11(1)(+1)	5	4(+1)	1	4
Mild DCS T61	6	5	6(1)	6(0)(-0)	6(0)					
Serious DCS	22	9	12(3)	14(4)(-2)	18(4)	21(2)(+1)	5	4(+1)	1	2
None	1(-1)	0	1(0)	1(1)(-0)	-					
T61	1(-1)	1	1(0)	1(0)(-1)		-		1		
T62	14(+1)	7	10(3)	12(3)(-1)	14(1)	16(1)(+1)	3	1	1	1
T62-O_2	5	0	0(0)	1(1)(-0)	4(1)	5(1)	3			2

1 *Figures in brackets without signs indicate new cases in the column*
2 *Figures in brackets with +/- signs indicate a shift from or to another treatment*

Six difficult cases involved the use of Dextran 70 and/or steroids The efficacy of such therapy cannot be assessed with such small numbers

30m Air Treatment of Decompression Sickness — Table 7

Of the six cases so treated, four involved correct primary treatment The remaining two cases involved an incorrect attempt to use a 30m air table and a relapse during an oxygen therapeutic table

Although three of the four correct therapies gave a cure by the time surface was reached, no real conclusions can be drawn

The Effect of Delays exceeding 5 hrs on Correct Oxygen Therapy of Serious Decompression Sickness

It becomes clear from Tables 8 and 9 that as may be predicted, delay results in a longer time to cure and the numbers cured are reduced

TABLE 7 *Results of treatment of decompression sickness with air*

	Cases	Cured by 5 atm	Relapse	Extra O_2	Cured by surface	Symptoms at surface	Signs at surface	Adjuvant F	Repeat O_2 R
First treatment	4	2	3	2	3	1	0		0
Second treatment	1	0	0	1	0	0	1	1	0
First at wrong depth	1	0	1	0	0	0	1	1	1
		went to complicated T55/73 therapy							

TABLE 8 - *The effect of treatment delay on course of therapy (s e cus DCS on g)*

Delay < 5 hrs	Cases	Cured by 10 min	Cured by 45 min	Cured by surface	Symptoms at surface	Signs at surface	Adjuvant F	Relapse
O_2 First	10	5(5)	8(3)	8(0)	8(1)	10(1		
T61	1	1(1)	1(0)	1(0	1(0)1	1(1)		
T62	8	4(-)	7(3)	7(0	7(0	8(1)		0
T62 + O_2	1	0(0)	0(1)	1(0	1(1	1(0)		
Air treatment	3	From O_2 relapse 1		From wrong	r F 1	Surfaced with symptoms ddtt nal R 1		1(1

Delay > 5 hrs	Cases	Cured by 10 atm	Cured by 45 min	Cured by surface	Symptoms at surface	Signs at surface	Adjuvant F	Relapse
O_2 First	12	3(3)	3(0)1	4(3)	9(3)	11(1	3	2
T61	1	1(1)	1(0	0(1)				1
T62	7(1)	2(2)	3(0)	5(3)	7(3)	6(1)	2	1
T62 + O_2	4	0(0)	0(0)	1(1)	3(1)	3(1	3	0
Air first T54/55	3	Cured by 5 atm		3(1)	Extra O_2 1		1	2

With delays under 5 hours 80 per cent of cases were cured by the time of surfacing but where delay exceeded 5 hours the cure rate fell to 50 per cent

In addition to the formal therapeutic tables various forms of additional therapy were employed These may be summarised as follows

Additional Drug and Fluid Replacement

Here as has been stated empiricism prevails although treatment is often based on well accepted treatment of certain clinical conditions in other disease processes which also may be found in decompression illnesses For instance the haemoconcentration of decompression sickness and cerebral oedema of cerebral arterial gas embolism are common enough clinical conditions with well accepted therapeutic approaches A brief summary of adjuvant therapy employed in many of the cases discussed is

1 *Steroids* These are routinely used for cases of arterial gas embolism and for certain more severe cases of decompression sickness A typical dosage would be Dexamethasone 12 mgms IV stat followed by 6 8 mgms every 6 hours for a further 48–72 hours Active consideration is being given to increasing the initial dosage in arterial gas embolism to the equivalent of 2G Hydrocortisone with a further 1G at 3 and 6 hours This would be followed by a gradually reducing 6 hourly dose over the next 48 hours

Much argument exists over the use of steroids particularly their effect on the cerebral oedema consequent upon cerebral arterial gas embolism Widespread clinical use in the many areas of medicine and surgery where cerebral oedema is encountered has to be weighed against animal models suggesting steroids and for that matter drugs like mannitol are of limited value However it is the authors firm conviction that steroids are of value and that the oedema of cerebral arterial gas embolism is proven to be at least in part of vasogenic as opposed to cytotoxic origin can only be supportive for this conviction

2 *Fluid Replacement Therapy* The haemoconcentration and other intravascular events manifest in serious cases of decompression sickness warrant fluid replacement therapy early in the treatment of such cases Although the authors experience is largely based on the use of Dextran 70 up to 2 units in 24 hours any direct action of Dextran 70 on the intravascular pathological processes of decompression sickness is doubtful with this dosage In view of this and the problem of pulmonary oedema of a relatively refractory nature with Dextran overloading a growing body of opinion favours the use of crystalloids as the initial choice for fluid replacement therapy Pulmonary oedema if induced would respond more rapidly to diuretics and the relatively quick excretion of crystalloids allows a greater safety margin than Dextran It is therefore suggested that Dextran be reserved for particularly serious cases

3 *Other Drugs* Certain therapeutic regimes advocated elsewhere do not escape the label of polypharmacy There is no good scientific evidence for heparin although recent evidence suggests aspirin may be of value particularly as a first aid measure

Additional Oxygen Therapy

This may take three forms

(a) Oxygen breathing is recommended as a first aid measure where possible before

formal compression therapy can commence

(b) All the tables listed may have additional periods of oxygen breathing added provided the advice to use such additional oxygen breathing is cognisant of the dangers of acute oxygen poisoning of the central nervous system or chronic pulmonary oxygen toxicity

TABLE 10 *Results of repeated hyperbaric oxygen therapy*

Number of [illegible] cases	Time to unaided walking
8	not known
9	5 weeks
	6 week
6	5 months

(c) It has become common practice to use repetitive hyperbaric oxygen therapy after the completion of a formal therapeutic table has failed to achieve complete resolution of signs and symptoms Such treatment is best guided by patient response and may be given on a once or twice daily basis One daily routine that has been employed is to spend one hour at 10m followed by a 30 min decompression during which time oxygen is breathed continuously Such use warrants further study but in this series seven cases of decompression sickness completed the initial therapy with residual signs Four had sufficient problems to warrant further hyperbaric oxygen therapy Treatment was daily exposure to oxygen at 10m for one hour followed by decompression to surface over 30 mins This regime was continued for as long as any clinical improvement even of a non sustained nature was associated with the treatment As all these cases involved severe lower limb motor and sensory deficits time to unaided walking may be cited as a crude yardstick of progress but no firm conclusion may be drawn from these figures, crude comparison between these figures and earlier similar cases where no follow-up therapy was given suggests there may not be any apparent *ultimate* benefit in such therapy This regime will however, continue to be used unless clearly proved to be of no efficacy

Based on the foregoing evidence a flow chart (fig 1) has been produced for BR 2806 which recognises three criteria

1 Life threatening decompression sickness or arterial gas embolism within 5 hrs of the onset of symptoms or signs

2 Decompression sickness of a non life threatening nature

3 *Any* decompression illness in which more than 5 hrs have elapsed since the onset of symptoms or signs

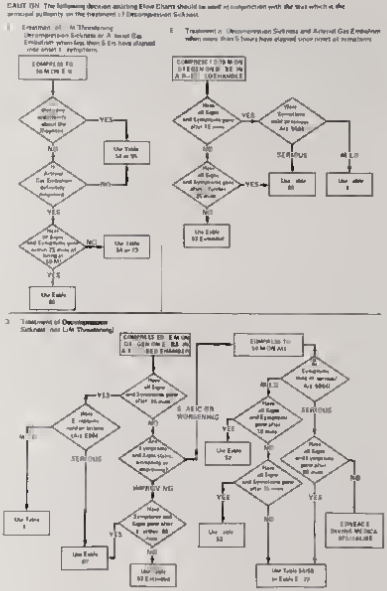
It must be added that no flow chart is of itself an adequate guide to therapy and its possible complications Careful reference to the text in BR 2806 is recommended It should also be clearly recognised that the flow chart is designed to enable diving officers and relatively inexperienced medical officers to initiate the correct therapy with confidence and without delay Further, it provides guidance as to action to be taken when response to therapy is less than optimal The flow chart and accompanying test are to be issued shortly as Change 4 to BR 2806

The greater emphasis placed on oxygen therapy at the equivalent pressure of 18m sea water is adequately justified as is the introduction of RN Table 63

Conclusions

The cases quoted tend to contain many difficult cases in which problems were generated outside RN control Delay in obtaining advice abounds and as always, represents the major handicap to successful therapy This critical factor is a recurrent theme in all published work on treatment of decompression illnesses

It is accepted that the number of cases does not allow anything but tentative conclusions to be drawn



1 RN Tables 63 and 73 appear to be equally satisfactory for the treatment of uncomplicated arterial gas embolism which responds quickly to recompression and no contradictions to the method of using RN Table 63 are evident It is currently being proposed that the use of this table be added to the options available for submarine escape training incidents

2 Even correct usage of oxygen tables does not at first sight appear to be entirely satisfactory for the therapy of serious decompression sickness The cure rate at the surface is 64 per cent although this includes cases where delay in therapy

occurred. However, if those cases with residual minimal symptoms and no clinical signs are included, the cure rate becomes 80 per cent. When compared with Rivere (1964) Stark (1962), Moretti (1970 and 1973) and other past experience with air therapies, the outcome is favourable. When compared with the 65 per cent success of oxygen therapies reported by Bornmann (1967) the results are equally favourable. Albano (1972) considered the use of hyperbaric oxygen therapy in a variety of decompression illnesses and reported favourably on its use compared to previously used air therapeutic tables. Unfortunately the tables used do not allow any direct comparison with the cases reported here.

3. The numbers are too small to allow any firm conclusions on the worth of extending RN Table 62 by giving extra oxygen breathing periods. It should be noted that where extra oxygen sessions were used with RN Table 62 the justification was that a poor or inadequate response had been obtained after 75 mins on oxygen at 18m.

4. Of those cases of decompression sickness treated with air tables, none was straightforward. Four were correctly treated with air and were cured. The other two resulted from one wrong initial treatment and one failure to respond to oxygen therapy.

5. There is no evidence to show that using oxygen tables only in cases where more than 5 hours has elapsed since time of onset of signs and symptoms was in any way detrimental. Such a policy when correctly adopted resulted in an overall cure rate of 50 per cent rising to 80 per cent if removal of clinical signs is adopted as a criterion.

6. The use of steroids in treating arterial gas embolism has become accepted practice whereas their use in decompression sickness is only justifiable for serious cases. Plasma expanders are of proven use in decompression sickness and the authors opinion, based on available evidence, is that their use should be routine for all serious cases.

7. Those cases receiving further hyperbaric oxygen therapy after an initial therapy did uniformly show a variety of sustained and/or non-sustained improvement associated with the therapy. However response to repeated hyperbaric oxygen after initial treatment always seemed to cease quite rapidly. Whilst no firm evidence exists as to the influence of such an approach on the end result, it was a clear impression that, on balance, it hastened the improvement that, in any given patient would probably have occurred with time.

8. The authors are well aware of the difficulties inherent in attaching too much significance to such a small series of cases showing so many different problems. Most therapeutic interventions could be argued to succeed by merely halting a pathological process which, having been arrested, improves more with the 'tincture' of time rather than any other agent. However the authors prefer to believe that active, early and rational compression therapy achieves a more positive result.

9. It is worth repeating that the aims of the revision in therapeutic approach were simplification and rationalisation. In truth they do not represent any single radical change but rather a change of emphasis. Many aspects of therapy still need research, none more so than those involving adjuvant therapy. The role of maintaining cases under pressure for long periods in a saturation mode on oxygen/nitrogen mixtures, an approach becoming fashionable, needs evaluation. Unfortunately of the cases cited elsewhere as justification for use of this type of therapy, none suggest it has any place in elective treatment schedules. Rather it is a useful adjunct in mismanaged cases complicated by pulmonary oxygen toxicity.

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A Radiological Follow-up Study of the Effect of Asbestos in Dockyard Workers in Portsmouth

G H Grant McMillan, G. Sheers and R.J. Pethybridge

ABSTRACT

In 1968 a 10 per cent random sample of men variously exposed to asbestos at work in HM Dockyard Portsmouth was examined to determine the prevalence of asbestos related lesions. Those who responded at that time have been studied after an interval of nine years to determine attack rates. Among those who had no lesion in 1968 and were re-examined 10.6 per cent had developed some asbestos related lesion but only 0.6 per cent had pulmonary parenchymal fibrosis whereas 3.7 per cent of those with a pleural lesion at the initial survey were found to have developed parenchymal fibrosis. Dose response relationships were found in relation to occupations, potential risk of exposure, time in that occupation and time elapsed since first employment in that occupation. The prevalence of lesions among smokers and ex-smokers was almost double that in non-smokers. All those who developed parenchymal fibrosis had a positive smoking history.

Introduction

In 1968 a 10 per cent random sample of the civilian male employees in HM Dockyard Portsmouth was studied to determine the prevalence of asbestos related pulmonary and pleural lesions and to relate this to exposure to asbestos and to smoking habit (Harries *et al* 1972). A response of 92.5 per cent was achieved (1017 men). These men (with the exception of eight who were RN personnel engaged in management duties in 1968) were studied after an interval of nine years to determine attack and progression rates of asbestos related lesions.

Methods

The details of the methods used to trace the population, conduct examinations, read the chest radiographs and classify the lesions have been described elsewhere (McMillan, Sheers and Pethybridge 1978).

In summary, survivors living or working in the Portsmouth area were invited to attend a mobile radiography unit operating to the dockyard and to complete a questionnaire to update occupational and smoking history data. One hundred millimetre postero-anterior chest radiographs were taken. These were used initially to identify any subject who required urgent clinical investigation and were then read independently by two of us (GHGM and GS). At the same visit a full size postero-anterior chest radiograph was taken. A man was recalled for further examination if one reader recorded an asbestos related lesion on the 100 mm film and confirmed or could not deny the presence of that lesion on the full size film. All those recalled had 45° oblique radiographs taken and were examined by one of us (GHGM). Pulmonary function tests were performed when there was any suspicion of involvement of the lung parenchyma.

Men living away from Portsmouth were asked to complete a questionnaire and their general practitioner arranged for full size PA and 45° oblique chest radiographs to be taken at a local hospital. We used the PA view as the screening film, referring to the obliques to confirm or deny suspected abnormalities.

All men who attended for radiography were informed of the result of the examination either directly or through their general practitioner and advised regarding further action.

Three types of benign pleural

abnormality were considered uncalcified pleural plaques calcified pleural plaques and diffuse pleural thickening Parenchymal fibrosis was diagnosed only when the typical radiographic appearances and persistent basal rales were detected and there was a reduction of gas transfer factor to less than 70 per cent of the predicted value in the presence of a restrictive ventilatory defect pattern of static and dynamic lung volume (the incidence did not vary when a threshold of 75 per cent of predicted value of transfer factor was used)

A history of asbestos exposure was obligatory to the diagnosis of any of these lesions Both readers were required to agree on the final diagnosis

Assessment of Exposure to Asbestos

Although stringent measures to prevent the exposure of employees to asbestos were introduced in the dockyard in 1966 the effect was not immediate and we considered that while the risk of exposure diminished year by year, full protection was not achieved until 1970

The risk of exposure varied between the occupational groups in the population This risk was estimated for each occupation and four exposure groups were defined Each man's occupational history was studied to determine the occupation with the highest risk of exposure This was used to allocate each to an exposure group and to calculate the duration of potential exposure and time since first exposure

The occupations and number of men in each exposure group are shown in table 1 Group 1 men are likely to have had moderate to high continuous exposure group 2 moderate intermittent exposure group 3 rather less while those in group 4 had little or no direct exposure As the allocation to group was done from an occupational rather than exposure history group 4 may contain a few men who have had significant exposure to asbestos

TABLE 1 – *Number of men and occupations in each exposure group*

	Group 1	Group 2	Group 3	Group 4
Number of men	49	272	255	433
Occupations	Lagger	Electrical fitter	Shipwright	All other occupations
	Asbestos sprayer	Caulker riveter	Mechanical fitter	
	Sailmaker lagger	Coppersmith		
	Asbestos storeman	Ship fitter		
	Painter afloat	Boilermaker		
	Mason afloat	Driller		
		Welder		
		Burner		
		Joiner		
		Plumber		

Results

Five hundred and thirty seven (53 2%) of the group studied in 1968 were still employed in a weekly paid capacity in the dockyard Of these 93 1 per cent responded Eighty eight men had died between 1968 and 1977 (table 2) The remaining 384 had moved to other yards to salaried posts in Portsmouth Dockyard or were no longer employed in any of the dockyards

Response

Seven hundred and nineteen men were re-examined 71 3 per cent of the total sample and 78 1 per cent of the survivors (table 2) There were variations in the response rates between the groups in the range 79 6 per cent (group 1) down to 66 3 per cent (group 4) of the total sample and 87 7 per cent to 75 1 per cent of the survivors The former variation was due largely to differences in the percentage of each group known to be dead In 1968 31 men were found to have an asbestos related lesion (table 3) By 1977 seven of these men had died Twenty of the 24 survivors were re examined (table 4)

Among the 202 non responders only three

TABLE 2 - *Composition response and deaths in the sample re-surveyed in 1977*

	All	Exposure Group			
		1	2	3	4
Total in 1977 sample	1009	49	272	255	433
Number (and %) known to be dead	88 (8 7)	4 (8 2)	21 (7 7)	12 (4 7)	51 (11 8)
Number of survivors	921	45	251	243	382
Number attended for radiograph	719	39	201	190	287
Attended as percentage of total sample	71 3	79 6	74.6	[illegible]	66 3
Attended as percentage of survivors	78 1	86 7	80 9	78 [illegible]	75 1

TABLE 3 - *Prevalence of asbestos related lesions in each exposure group in 1968*

Exposure group	Number of men examined	Number (and %) abnormal	Uncalcified plaques	Calcified plaques	Diffuse pleural thickening	Parenchymal fibrosis
1	49	6 (12)	0	1	[illegible]	3
2	272	12 (4 4)	8	1	3	0
3	255	8 (3 1)	3	1	4	0
4	433	5 (1 2)	3	2	0	0
All groups	1009	31 (3 1)	1	5	9	3

remained untraced (table 5) Four men were living abroad and failed to respond but are known to be alive and well Twenty men were unwell at the time of the re examination and were unable to be examined None of these was found to be suffering from chest disease

The distribution of ages and time since first employment in the occupation used for group allocation (time since first exposure) of the responders were similar to those of the survivors (tables 6 and 7) Although there were non responders in all groups, the non response rates were greatest in the extreme age groups i e men under 35 or over 64 years The young men would have had a relatively short potential exposure period and therefore a low rate of related lesions would be expected in this group while the older men who would have had longer exposures would be expected to have a higher rate

Deaths

One of the 88 deaths was due to asbestos related parenchymal fibrosis and three to mesothelioma (table 8) The case of parenchymal fibrosis had been diagnosed in 1968 but those who died of mesothelioma

TABLE 4 — *Response in 1977 among the 31 men with abnormalities in 1968*

Abnormality in 1968	Number of men	Re examined in 1977	Dead	Refused	Sick
Unclassified plaques	14	8	3	2	1
Calcified plaques	5	4	1		
Diffuse pleural thickening	9	1	1	1	
Parenchymal fibrosis	3	1	2		
All abnormalities	31	20	7	3	1

TABLE 5 — *Reasons for non response in 1977 among survivors of 1009 men in the 1968 study population*

	Number of men	Exposure Group			
		1	2	3	4
Refused	175	5	45	46	79
Emigrated	4			2	2
Sick	20	1	3	5	11
Untraced	3				3
All reasons	202	6	48	53	95

had no radiographic abnormality at that time There was one case in each of groups 2, 3 and 4 Age at death ranged from 55 to 67 years, duration of potential exposure from 24 32 years and time since that period started to death 35 41 years Two of these men had a positive smoking history Eight deaths were due to bronchial carcinoma None of these men had an asbestos lesion in 1968 and we could find no evidence of such a lesion being detected before or after death. All but one were smokers in 1968 Six were in group 4 one in group 2 and one in group 3 The mean age at death was 61 6 years with a range of 58 to 73 years

Two further cases of bronchial carcinoma were found among those examined Both had had operative treatment and were well

Progression rates

Among the 27 men with asbestos related lesions in 1968 who were re-examined in (20 men) or were dead by 1977 (7 men) only one had developed parenchymal fibrosis since 1968 (table 9). He previously had diffuse pleural thickening He was an ex-smoker in group 3 and had a potential exposure period of 34 years starting 41 years before 1977

TABLE 6 — *Relative (and absolute) age frequency distribution of survivors responders and non-responders in 1977 and of dead at time of death*

Group		Age (years)					
		Under 25	5-3	35-44	45 54	55-64	65 and over
Survivors	%	0 4 (4)	16 2 (166)	16 9 (156)	19 0 (175)	25 5 (235)	19 9 (183)
Responders	%	0 4 (3)	15 2 (109)	17 7 (127)	20 9 (145)	27 8 (200)	18 8 (135)
Non-responders	%	0 5 (1)	29 1 (59)	14 4 (29)	14 9 (30)	17 3 (35)	23 8 (48)
Dead	%	0 0 (0)	2 9 (2)	1 1 (1)	8 0 (7)	36 4 (32)	52 3 (46)

TABLE 7 - *Relative (and absolute) distribution of time since first exposure to asbestos at work for survivors, responders and non-responders*

Group		Time since first exposure (years)					
		Under 10	10 19	20-29	30-39	40-49	50 and over
Survivors	%	0 4 (4)	32 9 (303)	26 5 (244)	22 8 (210)	12 7 (117)	4 7 (43)
Responders	%	0 6 (4)	30 0 (216)	26 9 (193)	24 6 (177)	13 4 (96)	4 6 (33)
Non-responders	%	0 0 (0)	43 1 (87)	25 3 (51)	16 3 (33)	10 4 (21)	5 0 (10)

No other men who had diffuse pleural thickening in 1968 had developed a new lesion

Six of the eight who had simple plaques had no new lesion though in one case calcification had appeared in the plaques The remaining two men had developed diffuse pleural thickening No worker with calcified plaques in 1968 had a new lesion but two showed considerable increase in the extent of the calcification

There was only one death attributable to asbestos exposure in the 27 men and that was due to asbestos related pulmonary fibrosis in a man who had the disease diagnosed in 1968

Attack rate new cases of asbestos-related lesions

Six hundred and ninety nine men re examined in 1977 had no asbestos related abnormality detected in 1968 Seventy four (10 6%) of this group were found to have developed such a lesion in the intervening nine years (table 10) This attack rate varied between the exposure groups reducing with the level of exposure from 14 3 per cent in group 1 to 8 1 per cent in group 4

TABLE 8 *Certified cause of deaths of 88 men since 1968 related to presence of asbestos related lesions in 1968*

1968 X-ray	Number of deaths	Cause of death			
		Asbestosis	Mesothelioma	Bronchial carcinoma	Other
Uncalcified plaques	3				3
Calcified plaques	1				1
Diffuse pleural thickening	1				1
Parenchymal fibrosis	2	1			1
Other lesions	81		3	8	70

TABLE 9 *Prevalence of asbestos related pleural abnormalities and disease in 27 of the 31 men who had these lesions in 1968 who were re examined in or had died by 1977*

[illegible]	Number of men	Uncalcified plaques	Calcified plaques	Diffuse pleural thickening	Parenchymal fibrosis	Other causes of death
[illegible]	[illegible] +(1)	5	1	2		(3)
[illegible]	[illegible] +(1)		4			(1)
[illegible]	[illegible] (1			6	1	(1)
[illegible]	[illegible] (2)				1 (1)	(1)

[illegible] are the numbers of men who were dead in 1977

TABLE 10 — *Number (and %) of men in each exposure group who had no asbestos related lesion in 1968 who were found to have such a lesion in 1977*

Exposure group	Number of men examined	Number (and %) with asbestos related lesions	Uncalcified plaques	Calcified plaques	Diffuse pleural thickening	Parenchymal fibrosis
1	75	5 (14 3)	2 (5 7)	2 (5 7)	0 ( )	1 (2 9)
2	195	26 (13 3)	16 (8 2)	8 (1)	1 (0 5)	1 (0 5)
3	184	20 (10 3)	11 (6 0)	2 (1 1)	5 (2 7)	2 (1 1)
4	285	23 (8 1)	16 (5 6)	6 (2 1)	1 (0 4)	1 ( )
All groups	699	74 (10 6)	45 (6 4)	18 (2 6)	7 (1 0)	5 (0 6)

TABLE 11 — *Prevalence of asbestos related lesions among the 699 survivors of men with no lesions in 1968 who were re examined in 1977 related to exposure group and time since first exposure to 1977*

Exposure group	All	Time since first exposure (years)					
		Under 10	10–19	20–29	30–39	40–49	50 years or over
1 Examined	35	1	11	11	5	1	6
Abnormal	5	0	1	1	1	3	1
Rate %	14.3	0	9 1	9	20 0	42 9	
2 Examined	195	1	54	5	[illegible]	1	6
Abnormal	26	1	1	8	[illegible]	6	
Rate %	13 3	0	1 9	15 4	1 [illegible]	3 1	[illegible]
3 Examined	184	0	6	51	5	18	6
Abnormal	20	0	2	4	6	3	[illegible]
Rate %	10.5	0	3 1	1 7	1 3	18 9	[illegible]
4 Examined	285	[illegible]	87	3	7[illegible]	3[illegible]	[illegible]
Abnormal	23	0	1	[illegible]	0	[illegible]	1
Rate %	8 1	0	[illegible]	9 6	[illegible]	[illegible]	1
All Examined	699	4	216	187	1 3	8[illegible]	1[illegible]
Abnormal	74	3	5	3	21	31	[illegible]
Rate %	1 6	0	3	1 3	1 1	13	1[illegible]

TABLE 12 *Prevalence of asbestos related lesions among the 699 survivors of men with no lesion in 1968 who were re-examined in 1977, related to exposure group and time spent in exposed work to 1970*

Exposure group		All	Time in exposed work (years)					
			Under 10	10–19	20–29	30–39	40–49	50 and over
1	Examined	35	9	10	5	8	1	0
	Abnormal	5	0	1	1	3	0	0
	Rate %	14.3	0	10.0	11.1	50.0	0	0
2	Examined	195	50	50	50	37	2	1
	Abnormal	26	1	2	5	11	1	1
	Rate %	13.3	2.0	14.0	10.0	29.2	14.3	100.0
3	Examined	184	58	63	37	19	6	1
	Abnormal	20	2	8	3	6	1	0
	Rate %	10.9	3.5	12.7	8.1	31.6	16.2	0
	Examined	285	78	68	67	50	19	3
	Abnormal	3	1	6	7	6	2	1
	Rate %	8.1	1.3	8.8	10.5	12.0	10.5	33.3
All	Examined	699	195	191	163	112	33	5
	Abnormal	24	4	27	16	26	4	2
	Rate %	10.6	2.1	14.5	9.8	23.2	12.1	40.0

TABLE 13 *Number and prevalence (%) of asbestos related lesions in each exposure group for all men re-examined in 1977*

Exposure group	Number of men examined	Number and (prevalence %) with asbestos related lesions	Uncalcified plaques	Calcified plaques	Diffuse pleural thickening	Parenchymal fibrosis
1	39	9 (23.1)	2 (5.1)	3 (7.7)	2 (5.1)	2 (5.1)
2	401	34 (16.8)	19 (9.4)	10 (4.9)	4 (2.0)	1 (0.5)
3	190	26 (13.7)	12 (6.3)	3 (1.6)	8 (4.2)	3 (1.6)
4	282	25 (8.9)	12 (5.9)	7 (2.4)	1 (0.3)	0 (0.0)
All	719	94 (13.1)	50 (6.9)	23 (3.2)	15 (2.1)	6 (0.8)

TABLE 14 *Prevalence of non-malignant asbestos related lesions in 719 men examined in 1977 related to smoking habit*

Lesion	Non smokers	Ex-smokers	Smokers
Uncalcified plaques	9	17	24
Calcified plaques	3	10	10
Diffuse pleural thickening	1	6	8
Peribronchial fibrosis		2	4
All types	13	35	46
Number of men	163	206	350
Prevalence %	8 0	17 0	13 1

TABLE 15 – *Prevalence % of asbestos related lesions in 1009 men in 1968 and in a mean prevalence % in 1977 related to age in 1968 and exposure group*

Exposure group	All ages	Age in 1968				
		Under 25	25 34	35-44	45 5	55 and over
1 Number of men	45	1	10	7	14	17
1968 rate	12 2	-		-	8 6	11 8
1977 rate	24 5				50 0	9 1
2 Number of men	272	49	53	43	64	63
1968 rate	4 4	—		7	4 7	11 1
1977 rate	15 4	2 0	7 6	14 5	23 —	25 4
3 Number of men	255	64	41	46	47	49
1968 rate	3 1		-		12 8	4 3
1977 rate	11 8		3 9	11 1	25 5	18 4
4 Number of men	433	45	50	74	116	148
1968 rate	1 2	-			0 9	2 3
1977 rate	7 4		6 0	4 1	12 1	8 8
All Number of men	1009	157	164	170	241	277
Number abnormal 1968	31	0	0	2	1	15
Number abnormal 1977	116	1	10	15	8	42
1968 rate	3 1	—	-	1 2	5 8	5 4
1977 rate	11 5	0.6	6 1	8 8	19 9	15 7

Four men (0 6%) of the 699 (table 10) were found to have parenchymal fibrosis compared to one of the 19 who had an abnormality (other than parenchymal fibrosis) in 1968 (table 9) One of these men was in group 1 one in group 2 and two in group 3 the range of duration of potential exposure was 10-51 years and time since that period started 17 58 years before 1977 All had a positive smoking history.

Forty five (61%) of the 74 affected had developed simple plaques 18 (24%) calcified plaques and seven (9%) diffuse pleural thickening Five of those with diffuse pleural thickening were in exposure group 3

No new lesions occurred within the first ten years since first exposure and only five before 20 years had elapsed (table 11) The attack rate for all those with less than 10 years exposure was low at 2 1 per cent (table 12) The attack rates increased with time in all groups and the order of increase was that of exposure risk both in level of exposure i e time in the potentially exposed job and time since first exposure

Overall prevalence of asbestos related lesions and effect of smoking

The prevalence of asbestos related lesions in all 719 men re examined in 1977 is shown in table 13 and related to smoking habit in table 14 A dose response relationship was very apparent (table 13) the prevalence ranging from 23 1 per cent in group 1 down to 8 7 per cent in group 4 There was a higher overall prevalence almost double of abnormalities to those who smoke or have smoked compared to non-smokers All those with parenchymal fibrosis had a positive smoking history

Minimum prevalence rate

Among the non respoders and of those who had died from other causes were several who were known to have asbestos related benign pleural lesions We have added this information to that collected in

TABLE 16 *Minimum prevalence rates % of asbestos related lesions in each and all exposure groups related to time since started in exposed job to 1977 or to death if earlier*

Exposure Group	All times	Time (years) since first exposure to 1977 or death if earlier					
		Under 10	10 19	20 29	30–39	40 49	50 and over
Number of men	49	1	13	14	8	12	1
Number with lesions	17	0	1	1	2	7	1
Prevalence %	24 5	0	7 7	7 1	25 0	58 3	100 0
Number of men	277	2	76	74	61	41	18
Number with lesion	42	0	2	17	8	14	6
Prevalence %	15 4	0	2 6	16 2	13 1	34 1	33 3
Number of men	255	0	94	65	58	27	11
Number with lesions	30	0	2	10	11	6	1
Prevalence %	11 8	0	2 1	15 4	20 0	22 2	9 1
Number of men	433	7	134	112	105	50	25
Number with lesions	37	0	1	11	10	7	3
Prevalence %	7 6	0	0 7	9 8	9 5	14 0	12 0
Total number of men	1009	10	317	265	232	130	55
Total number with lesions	116	0	6	34	31	34	11
Total %	11 5	0	1 9	12 8	13 4	26 1	20 0

the survey to derive a minimum prevalence rate in the 1009 men examined in the original study

The ages shown in table 15 are those of the men in 1968 and thus by comparing the rates in each group in 1968 and 1977 the change in the same group of men can be assessed The overall change in prevalence in the nine year period was 8 4 per cent with the greatest changes occurring in groups 1 and 2 Between and within exposure groups changes in rates appear to be related to age (table 15)

Similarly the approximation to the minimum prevalence rate increased with both the time elapsed since the potential exposure began (table 16) and the duration of the exposure period (table 17) The dose response relationship was much more apparent than that found when only new cases are considered

The difference in prevalence between group 1 and the others was partly accounted for by differences in age frequency distribution Group 1 had a higher proportion of older men than the other groups

Discussion

The similarities in ages and exposure between the responders and all the survivors lead us to believe that the observed rates are likely to apply to the survivors in the whole sample and thus to the dockyard population of 1968 We accept that the calculated rates can only approximate to the true rates because of deaths (8 7% of original 1968 study population) and a 22 per cent non response rate within the survivors of the original study population

With these reservations we conclude that approximately 10 per cent of the survivors of Portsmouth Dockyard employees in 1968 who had no radiologically detectable asbestos related

TABLE 17 - *Minimum prevalence rates % of asbestos related lesions in each and all exposure groups related to time in exposed job to 1970 or to death if earlier*

	Exposure group	All cases	Time (years) in exposed job to 1970 or to death if earlier					
			Under 10	10 19	20 29	30 39	40 49	50 and over
1	Number of men	49	11	11	24	9	3	1
	Number with lesions	12	0	1	4			1
	Prevalence %	24 5	0	9 1	28 6	44 4	66 7	100 0
2	Number of men	272	73	62	66	53	15	3
	Number with lesions	42	7	8	9	17	5	1
	Prevalence %	15 4	9 7	12 9	13 6	32 1	33 3	33 3
3	Number of men	255	90	73	52	29	9	2
	Number with lesions	30	7	8	9	10	0	1
	Prevalence %	11 8	7 7	11 0	17 3	3 5	0	50 0
4	Number of men	433	120	106	97	74	31	5
	Number with lesions	32	2	9	9	7	4	1
	Prevalence %	7 4	1 7	8 5	9 3	9 5	1 [illegible]	20 0
All	Number of men	1009	294	252	279	165	6	11
	Number with lesions	116	6	26	31	38	11	4
	Prevalence %	11 5	2 0	10 3	13 5	23 0	19 0	36 4

lesion at that time had developed such a lesion by 1977 Most of these lesions were of the benign pleural type but approximately 0 6 per cent had developed parenchymal fibrosis The prevalence of parenchymal fibrosis was likely to be higher in those who had a pleural abnormality in 1968 (A separate study of a large group of men with these lesions has been conducted as accurate estimates cannot be obtained from the small group with pleural abnormalities in 1968 (McMillan and Rossiter 1979))

The incidence of all types of asbestos related lesions was positively related to the level and duration of potential exposure and to the time lapsed since that period started No cases of parenchymal fibrosis occurred among the men with less than 10 years exposure and 17 years since exposure started

Cases of mesothelioma appeared to occur only occasionally and no firm conclusions can be drawn from the three cases in the sample A large group of cases of this disease is the subject of current investigation

Smoking exerted a considerable influence on the development of all asbestos related lesions and especially on the incidence of parenchymal fibrosis. even allowing for age differences between the three smoking groups

Acknowledgements

This survey would not have been possible without the active encouragement and co-operation of management trade union representatives and employees. past and present at Portsmouth Dockyard, and we record our sincere thanks to them Dr J Hesketh made a valuable contribution by undertaking the clinical screening of the 100 mm radiographs and assuming responsibility for subjects considered to require urgent investigation The assistance of the staff at the Medical Research Council Pneumoconiosis Unit South West Regional Health Authority. and Portsmouth Dockyard Medical Centre and the Medical Research Unit Devonport is gratefully acknowledged Funds were provided by Ministry of Defence (Navy) and the Medical Research Council

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UVL Induced Changes in Calcium Absorption and Excretion and in Serum Vit D3 Levels measured in Black-skinned and Caucasian Males

M. A. Macleod and N. J. Blacklock

ABSTRACT

With the evident increase in osteolytic disease especially in black skinned urban communities it has become necessary to attempt to define and measure dietetic and environmental factors contributing to this increase. This paper describes and measures calcium absorption and excretion and serum hydroxy cholecalciferol (Vit D3) levels in both black skinned and caucasian controls exposed to similar doses of ultra violet light. It is concluded that there is a significant difference in response to UVL stimulus between the two groups to the detriment of the black-skinned population.

Introduction

We have previously described a technique using a large volume chamber scintillation counter which enables a rapid but accurate measurement of calcium absorption to be made (Macleod, 1971 Macleod and Blacklock, 1974a) Using this technique in a study of calcium absorption in normal controls and patients with urolithiasis we became aware that several factors exerted a significant influence on the interpretation of the results (Blacklock and Macleod 1974b, Macleod and Blacklock 1975) A significant observation to emerge from this study was the difference in calcium absorption between black and white subjects In each case the white subjects absorbed calcium to a greater extent than the black and this was reflected also in the 24 hour urinary calcium measurements which were significantly lower in blacks, especially in those under the age of 20

This difference between black and white skinned individuals suggests that pigmented skin blocks the effect of ultra violet light (UVL) in releasing hydroxy cholecalciferol (Vit D3) and thus affects absorption of calcium from the gut This paper describes studies to measure calcium absorption and 24 hour urinary excretion and serum Vit D3 levels in caucasian and black-skinned men before and after controlled doses of UVL.

Materials and Methods

Groups of caucasian and black-skinned men had their calcium absorption measured by external arm counting (Macleod 1971) After allowing a fortnight for the ^{47}Ca used in the initial measurement to decay they were exposed to a controlled dose of 290 330 nm UVL given over three, four and six minutes on three consecutive days, the bladder being emptied and 24 hour urine collections started immediately following the first dose of UVL Repeat ^{47}Ca uptake studies were commenced on the third day immediately following the last dose of UVL

Serum Vit D3 levels before and after exposure to UVL were measured for each subject using a radioimmunoassay technique

Results

The results show that in caucasians there is a significant increase in calcium absorption and in urinary calcium excretion following exposure to UVL (table 1) Measurements of 24 hour urinary calcium excretion in four subjects over three consecutive days of exposure to UVL are shown in table 2. These show a gradual increase in the amount of calcium excreted

TABLE 1 – *^{47}Calcium absorption and urinary calcium excretion in white controls before and after exposure to ultra-violet light*

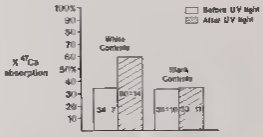
Number	Mean % Ca absorption ± S.D	Mean 24 hour urinary excretion mg ± S.D.
13 before U.V light	34 + 7	170 ± 55
12 after U.V. light	60 + 14	284 ± 79

TABLE 2 – *24 hour urinary calcium excretions on 3 consecutive days following exposure to ultra-violet light*

Subject	Urinary calcium excretion mg/24 hour		
	1	2	3
AH	361	415	385
JZ	102	180	283
MM	214	306	418
DW	213	229	262

and in two of the subjects this exceeded the upper limit of normal (300 mgms in 24 hours)

On the other hand when the effect of UVL on calcium absorption (fig 1) and excretion was studied in black skinned subjects who were exposed to the same dose under the same conditions as the caucasian group there was no obvious absorptive or excretory response to UVL stimulation (table 3).



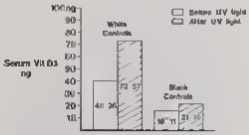
^{47}Calcium absorption in white controls compared with black controls before and after exposure to ultra-violet light

Fig 1

TABLE 3 - ^{47}Calcium absorption and urinary calcium excretion in white controls compared with black controls before and after exposure to ultra-violet light

	Controls	Mean % Ca absorption ± S.D.	Mean 24 hr urinary calcium mmols
Before U.V. light	White	34 ± 7	4.25 ± 1.38
	Black	33 ± 10	3.07 ± 1.42
After U-V. light	White	60 ± 14	7.10 ± 1.98
	Black	34 ± 11	3.39 ± 1.90

Assuming the failure to respond to UVL in the blacks was due to pigmented skin acting as a barrier to UVL mediated Vit D3 release it was considered that the serum Vit D3 assays before and after exposure to UVL compared with calcium absorption might provide a more direct measurement of this effect The results show that while both calcium absorption and serum Vit D3 levels were significantly raised in caucasian subjects following exposure to UVL, black subjects showed no significant difference between pre and post irradiation levels (fig 2 and table 4)



Serum Vit D3 levels in white controls compared with black controls before and after exposure to ultra-violet light

Fig 2

Discussion

From these results it is obvious that there is a significant difference in the response to ultra violet light in both calcium absorption and excretion and the release of Vit D3 between white and black-skinned individuals and that these differences are to the detriment of the black skinned population Although most of the extensive work aimed at solving the problem of rickets in the coloured community is

TABLE 4 – *^{47}Calcium absorption and serum 25 hydroxy cholecalciferol (Vit D3) levels in white controls compared with black controls before and after exposure to ultra-violet light*

	Controls	Mean % ^{47}Calcium absorption ± S.D.	Mean serum Vit D3 ng ± S.D.
Before U V light	White	42 ± 7	40 ± 26
	Black	33 ± 10	16 ± 11
After U V light	White	60 ± 15	73 ± 57
	Black	34 ± 11	21 ± 15

concerned with calcium deficient food and other dietary factors peculiar to the black immigrant population, it can be seen from the preliminary observations detailed in this paper that environmental factors must be considered in addition especially when one considers that the amount and intensity of sunshine encountered in Britain is considerably less than that of their native land

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Chance Discovery of a Large Mandibular Cyst

R.L. Travis

Case Report

A fit 17 year old girl was referred for extraction of the impacted /8 Routine orthopantomograph (fig 1) showed an unsuspected symptomless radiolucent area of the opposite mandible from 67 to 17

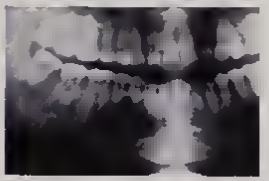

Fig 1

There was a suggestion that the cyst might extend posteriorly to 87 and that it was multilocular The apices of 347 protruded into the cavity and there was interradicular scalloping of the cyst wall (fig 2) On palpation the bone was slightly expanded bucally (fig 3) There was no lingual expansion There was no labial anaesthesia There were no palpable lymph nodes All teeth 07 responded to the electric pulp tester except 347 Blood chemistry was normal

At operation under general anaesthetic the cyst was approached via a gingival incision from 37 to /1 It extended from 67 to 37 and was filled with a fresh serosanguinous fluid which gushed from what

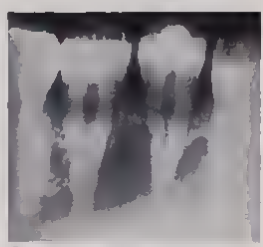

Fig 2

Fig 3

appeared to be cholesterol crystals There was no lining There was no obvious bone covering the roots of $\overline{547}$ and hence no blood supply Attempts were made to enter the apparent cavity in $\overline{877}$ region No cavity was found there

Comment

This was an unusually large haemorrhagic cyst of the mandible The bone loss had obviously weakened the mandible If this patient had been a male recruit about to be encouraged to play rugger or other contact sports a serious fracture of the mandible could have resulted but for the good fortune of an orthopantomograph being available

These cysts heal after evacuation of the contents In this particular case $\overline{547}$ will need to be root filled

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BUSSELL S N SMALES, F C., SUTTON, R B. O and DUCKWORTH R (1979) Glucose tolerance of patients with lesions of the oral mucosa British Dental Journal **146**, 188 189

An association between lichen planus and reduced glucose tolerance has been claimed by several authors but Christensen E et al (J Oral Path 6 143-151 1977) in a survey of 123 subjects with oral lichen planus found no significant difference between the frequency of glucose intolerance in these subjects and in groups within the general population The aim of the present study was to extend these findings by determining the prevalence of glucose intolerance in subjects with oral lichen planus with oral candidiasis and with white lesions not falling into either category Diagnosis was based upon clinical findings biopsies and smears. After determination of fasting blood glucose levels subjects were given 50g of glucose orally Blood glucose determinations were repeated after 30 and 120 min The recognition of glucose intolerance was based upon the criteria of Fitzgerald M G and Keen H (Br Med J i 1568 1964) The subjects admitted to this London Hospital survey numbered 88

Evidence of glucose intolerance was found in 6 of 47 subjects with oral lichen planus in 1 of 18 with other white lesions and in 2 of 23 subjects with oral candidiasis Using the Fisher Exact Probability Test no statistically significant difference was found between the lichen planus patients and subjects of the Bedford Survey (Butterfield W J H Proc R Soc Med **57**, 196 200, 1964) often taken to be representative of the population at large in the United Kingdom Furthermore there was no significant difference in the incidence of glucose intolerance in the patients with candidiasis in the glucose tolerance testing for all patients with any of these oral mucosal lesions Thus routine glucose tolerance testing for all patients with any of these oral mucosal lesions seems unwarranted Patients to be subjected to this investigation should still be defined on the basis of the clinical features

Because diabetes mellitus is recognised as being principally a disease of maturity the age distribution of patients in the various surveys that claim an association between reduced glucose tolerance and lichen planus lacks equivalence Thus different prevalences of glucose intolerance have been reported in populations which are not strictly comparable

Exercise Kali Cushion — The Joint Services Hovercraft Expedition to the River Kali Gandaki, West Nepal.

D.G. Bruce

In 1975 Squadron Leader Mike Cole of the Royal Air Force was asked to look for a small hovercraft capable of being used on the River Kali Gandaki in West Nepal. The theu Medical Director of the United Mission to Nepal Hospital at Tansen wanted to be able to use the river, unnavigable by conventional surface craft, so that journeys between clinics taking days on foot could be managed in a matter of hours. The IXth official Joint Services Expedition, sponsored by the Joint Services Expedition Trust Committee and led by Squadron Leader Cole sought to evaluate River Rover the hovercraft chosen, with a view to its use in Nepal and other remote regions of the underdeveloped world.

River Rover had the advantages of being robust and highly manoeuvreable as well as relatively inexpensive to build. Using a motor car engine and a simple transmission system, it was designed for use and maintenance by those with limited technical knowledge and facilities. The most important feature however was the incorporation of horizontal flaps aft of the driver fans. Analagous to aircraft ailerons, these were named elevons and enabled the pilot to bank the hovercraft into turns so preventing outward skid. This was apparently a completely new feature in small hovercraft design and it thus enabled a hovercraft of this size to be used on narrow fast flowing rivers.

The team of twenty-one servicemen (only three of whom were from the Royal Navy) included two doctors. Squadron Leader Robin Dugdale an RAF pathologist and the writer. Although neither of us had any experience of expedition medicine I had been in Nepal previously and had been exposed to tropical medicine whilst working in Zambia.

We recognised that our medical work would fall into three categories: caring for the team, attempting some medical research, and providing a temporary medical service for the local population. To protect the team as much as possible from the hazards of tropical microbes we began by giving each member a thorough medical examination, including a chest X ray. Anti tuberculous status was assessed and, in addition to the customary smallpox, cholera and typhoid prophylaxis, tetanus and polio boosters were included. Just before leaving UK anti-hepatitis gamma globulin and anti rabies vaccinations were also given. We regarded this extensive catalogue as necessary as the expedition would be closely associated with a population in which most of these diseases are rife.

Medical research had to be limited to fairly straightforward projects. My own resolve was to examine fatigue in hovercraft pilots and a subjective questionnaire (with an observer checklist) was produced. Hovercraft cabin noise and humidity were also to be measured in connection with this survey.

The provision of a temporary medical service for the local population along the

river was regarded by Squadron Leader Cole as particularly important To obtain some idea of what might be involved we contacted two recently returned mission doctors who gave us some guidance as to the nature of the problems we would be likely to encounter Armed with this knowledge we approached several commercial companies for supplies of drugs likely to be required by the local population The various drug houses were very helpful and readily provided the requisite goods

The Defence Medical Equipment Depot at Ludgershall kindly packed all our supplies observing the myriad rules surrounding air freight Our two thermometers had to be specially packed — in a wooden crate the size of a small television set!

The journey to base camp at Ramdi Ghat in West Nepal began on December 7 when the team gathered at RAF Lyneham for a final briefing before splitting into two groups The following day ten of us left a freezing Brize Norton on the weekly RAF VC10 flight to Hong Kong Despite poor transit accommodation in Hong Kong we found the colony a fabulous and fascinating place It was with very mixed emotions that we left for an overnight stay at Bangkok before continuing to Nepal

On December 13 we arrived in Kathmandu and immediately linked up with the other group who had flown out with our equipment in an RAF Hercules aircraft The following day was spent loading a vast amount of gear on to ancient-looking Nepalese lorries for the road journey to Ramdi We did however have one afternoon in which to explore Kathmandu The city lies towards the western end of a large broad valley surrounded by densely wooded hills. Several snow capped peaks of the high Himalayas were visible in the distance The old city centre has retained much of its original character though now surrounded by wide roads and new

Fig 1 [illegible] Square Patan Kathmandu Valley

developments and choked with tourists and souvenir shops The magnificient pagoda temples the palaces houses and shops share a rich legacy of intricate wood carvings.. a vivid contrast with the dirty muddy streets open sewers, urban cattle and mass of people

The expedition left Kathmandu on December 15 The convoy comprising a bus and two lorries started badly when the lorry carrying the hovercraft decided to take its own route out of the city An anxious few minutes followed at the first checkpoint when there was no sight of the craft but an unrepentant Sikh driver finally arrived amid a screech of brakes and a scattering of hens

That day s journey turned out to be both eventful and exhausting We were driving through the central hill region of Nepal a very beautiful area with steep hills.. often terraced rising above fast flowing rivers in deep gorges At one of these gorges we came upon the scene of an accident About an hour earlier a passenger bus had swerved off the road and tumbled about 200 feet down a steep slope towards the river Some of the more severely injured had already been taken to hospital but there remained about 25 very shaken Nepalis with a range of injuries First aid had been given by a bus load of young Europeans but fuller examination and some suturing were

required As Robin Dugdale stitched I examined each survivor and established a priority for their evacuation by open truck to the nearest hospital — four hours away at Pokhara

I subsequently learnt that of the forty or so passengers four had died and another three had sustained multiple fractures. The majority were luckier and had escaped with only minor cuts and sprains The other members of the expedition assisted with cleaning and carrying but it was a rather subdued party of servicemen that continued westwards

We arrived at Ramdi to find an already well established camp A small advance party including our two Gurkha soldiers had been at work for some weeks pitching tents building a kitchen and digging latrines The site itself lay between the upper village and the north bank of the Kali Gandaki River The camp was bordered on two sides by the ruins of huts built about ten years ago for Indian road and bridge builders Although giving a derelict air to the site the ruins were a ready source of wire timber and bricks useful for building camp furniture

Ramdi consists of a collection of thatched hovels alongside the road at either end of a large bridge across the river Long established as a ferrying place the village benefited greatly from the opening of the bridge in 1971 carrying the Pokhara road to the Indian border The village now sports about ten tea shops and four general stores Its other significance is that its position at the confluence of a smaller river with the Gandaki renders it an auspicious place for cremations Below the camp the beach was littered with fire sites as well as corpses in shallow graves belonging to families too poor to afford firewood.

Rising above the river are steep hills covered with large-leaved deciduous trees — home to several packs of baboons These hills prevented the sun from reaching our camp until ten in the morning and hid it again from mid afternoon Although warm in the sun the camp tended to be cool after sundown and was positively cold at night Against this background we settled in to what was to be our home for three months We soon grew accustomed to the dust the goats and the cattle and the crowds of Nepalis following our every move and on December 18 we launched River Rover before a huge audience This was certainly something different!

Fig 7 *River Rover prior to launching*

Christmas came and to promote goodwill we made a presentation of money and toffees to a local school At the presentation ceremony we were garlanded with flowers while the headmaster thanked us — by asking for more! In the evening to round off a rather unusual Christmas we dined and were entertained at the nearby Mission Hospital in Tansen

After the festivities we established a routine which lasted for several weeks During these first six weeks we had only one River Rover the driving of which had to be limited to our two experienced pilots This was a great disappointment to me for it not only prevented my learning to drive the craft but it also frustrated my study of fatigue in novice pilots

During this period the craft demon-

Fig 1 River Rover in fast water

strated its strengths and limitations The positive directional control given by the elevons enabled the craft to be manoeuvred through narrow tortuous stretches of river covering in minutes distances that would take hours to travel by foot The main problem turned out to be a design fault in the transmission of power to the drive fans Drive belt slip reduced the power available to the fans and this in turn caused problems in the main drive shaft During those early weeks the hovercraft spent much of the time on the riverbank undergoing repairs Another drawback was the craft s difficulty in ascending some of the rapids Large boulders beneath huge standing waves were an effective barrier on at least two rapids near Ramdi

Our medical work started soon after our arrival We remained aware of our public relations role but soon tired of the trickle of local patients throughout the day and so decided to hold an early morning clinic The word was soon spread and thereafter we were awakened daily by a dawn chorus of Nepalis hawking and spitting con spirito

Over the first few weeks the numbers attending these clinics gradually rose to between fifteen and twenty A visit to the doctor 'sahibs tended to be a family affair with curious cousins sisters and aunts ever ready to comment or offer advice

We were confronted with a wide range of disease mostly trivial coughs headaches and stomach pains, but including some terrible burns and infections Fortunately the Tansen Mission Hospital was only a few hours walk from Ramdi and we were able to refer refer serious cases of trauma or suspected tuberculosis there

Skin problems were particularly common — not surprising perhaps in a community where personal hygiene is not a priority We saw many more cases of scabies than we could treat, frequent infected skin lesions and some babies covered with a filthy weeping impetigo The worst cases however were the burned or scalded children brought to us several days after the accident We could do little other than clean the wounds and ask the parent to bring the child back for repeated wound toilet Sadly they returned all too rarely

Village Nepalis seem to believe that Western medicine provides an instant cure They have difficulty in understanding the need for repeated dressing or a course of medicine lasting several days and we could undoubtedly have achieved more at base camp had patients heeded our appeals to return for treatment This concept also prevented us from easing tuberculous coughs or severe burns lest it be regarded as the definitive treatment

Fig 4 [illegible]

Fig. [illegible] *Bal [illegible] pengo.*

We saw several abscesses one of which was particularly noteworthy An infant of two years small for his age and unable to walk was brought to the clinic On questioning other mothers it appeared that local children normally walked between twelve and eighteen months Examination of the child revealed a fluctuant mass with two crusted skin lesions on the right buttock Liberally swabbing the area with dilute Hibitane I removed the crusts and was rewarded with an ooze of pus After expressing as much pus as possible the cavity was packed with a Hibitane wick (Eusol was not available) and the mother was instructed to bring the child back for daily review This was received with concern by the mother for not only would it involve discomfort for the child but it would mean her carrying the patient for a daily round trip of two hours on foot She persevered for three days but then gave up

We never discovered the fate of that particular child, but the infant mortality rate in Nepal ranges from 40 to 60 per cent The figures vary from district to district but results produced by the United Mission to Nepal indicate that the presence of a trained nursing and midwifery auxiliary can halve this appalling statistic within two years With just a little knowledge the lethal cycle of infection and malnutrition can be broken

Ear and eye infections common and so crippling were readily cured by the appropriate antibiotic Sadly we had insufficient supplies of antibiotics and had to turn away patients for whom we could have achieved dramatic cures Middle ear infections were common in children but tended to be chronic and resistant to penicillin Septrin taken in adequate doses was excellent but we found that our instructions were not always followed

One young girl returned three weeks after being given a five day course of Septrin Her ear was no better and after some questioning it transpired that she had taken one tablet most mornings until the supply had run out Such is the stuff of despair!

We were rarely confronted with severely ill patients at Ramdi No doubt the relative proximity of the Mission Hospital accounted for this and when Robin Dugdale went down river to an area some

Fig [illegible] *Child with burn on arm*

days' walk from Tansen he found many badly neglected wounds and old untreated fractures Few Nepalis can afford to leave home for the many days journey involved in taking an invalid to hospital

One aspect of health care new to us was dentistry We were often asked to remove teeth and this we did readily — when convinced of the need We discovered that achieving reasonable local anaesthesia tended — particularly in the lower jaw — to be more painful than the extraction Some of our dental manipulations must have been extremely painful but our patients seemed on the whole satisfied

By way of a change during the first few weeks I was asked to lead a short reconnaissance trek to investigate the severity of the rapids upstream I was joined by an RAF sergeant and a Gurkha corporal In our three days away from Ramdi we covered forty or so miles We discovered a fascinating fact about Nepalese paths — the 'ups' outnumber the 'downs by about ten to one!

During that trek we spent a brief hour at the Riri annual bazaar Held on a holy day people walked for miles to bathe in the river and the large shingle beach was alive with thousands dressed in the holy colours orange and red Like fairs everywhere there were dozens of stalls including the inevitable discreetly secluded hut where the menfolk could indulge in Rauxi the local spirit

At the beginning of February we were joined by a BBC television film crew who were to make a documentary for the 'World About Us' series By late January, however it had become evident that the film would not include all members of the expedition This was disappointing for those excluded because the 'backbone' to the film — a five day hovercraft expedition downriver — was the only occasion on which the craft was to be included in anything other than brief trips

Just in time for the start of the downriver journey the second River Rover arrived This was most fortunate for it would have been impossible for the single hovercraft and one Gemini inflatable to provide the required support

As only eight servicemen were in fact to be featured in the film the rest of us were encouraged to become involved in other activities I went with a group intending a trek to Jomsom an area north of the main Himalayan range where the culture is almost totally Tibetan Unfortunately I developed a painful right knee two days along the route and was obliged to return to Ramdi I did however reach the pass at Gorapani from where at 10 000 feet I had spectacular views of the Himalayas

I returned to base to take over camp administration before the arrival of the BBC team Apart from my morning clinic the highlight of my day for the subsequent fortnight was the daily radio call to Dharan the headquarters of the Brigade of Gurkhas in East Nepal I spent many not so happy hours shouting into the headset at a distant Nepalese radio clerk whose English often seemed worse than my Nepali

As I was running the morning clinics myself during most of February I was always grateful for any assistance from other team members with wound cleaning dressing changes or baby bathing This latter activity was most ably demonstrated to an amused audience of local women by an experienced RAF sergeant!

Despite our work on their behalf our patients rarely thanked us If we committed the ultimate crime of failing to dispense medicine to one of our clients he (or more commonly she) would mope around with a doleful expression in the hope of a change of heart Very occasionally an egg (a valuable commodity) or a cauliflower would be presented to us and this compensated for the more usual ingratitude

With the departure of the film crew the

expedition began to fragment I spent a pleasant few days at the British Military Hospital at Dharan before returning in late February to learn how to pilot River Rover I had about four hours instruction and became quite proficient in handling the craft in fairly difficult water A lone doctor driving the craft on flat water would certainly have no problems in this respect

The fatigue study proved impracticable due to the absence of a second hovercraft in the early weeks of the expedition Humidity checks did not suggest that the hovercraft was particularly prone to 'steaming up' but like the noise recordings they were not exhaustive and no firm conclusions could be made.

The hovercraft was taken out of the water on March 5 and the expedition returned to Kathmandu shortly afterwards to await transport back to UK

The experience of operating River Rover highlighted many of the problems of using western technology in isolated regions Although still a prototype the hovercraft would not have survived for long without a skilled support team with proper equipment Fuel was often difficult to obtain and always expensive (diesel fuel is more widely used and is cheaper than the petrol we required) and of course engine or transmission spares were totally unobtainable locally

It seems to me that these problems do not completely invalidate the use of River Rover in remote parts but do restrict it to large organisations able to use the craft sufficiently to justify the expense of maintenance Perhaps maintenance costs would be less with a more satisfactory transmission system but any user would have to be prepared to employ a full time mechanic or engineer

Summing up the medical aspects of the expedition our list of drugs was comprehensive but in retrospect it would have been better to have taken fewer types of antibiotic but in larger quantities Long acting single dose injections of penicillin were particularly useful as were eye antibiotics and we could have used far more of them We certainly did not take sufficient Metronidazole — amoebic dysentery was widespread

The team remained very healthy We had one case of possible amoebic dysentery which cleared up after a short course of Metronidazole Sporadic episodes of diarrhoea occurred but these were minor individual cases Interestingly we were told and discovered for ourselves, that kaolin and morphine mixture did little for the local diarrhoea It required something a little stronger! There was no major outbreak of diarrhoea in base camp and this was undoubtedly due to our precautions with water supply — all drinking water was boiled — and to the cleanliness of our Sherpa kitchen staff

Our diet consisted of the military 'composite rations' Though nutritious 'compo' became very monotonous after three months of the same seven menus — five of which were based on stewed steak We attempted to brighten up the tinned food with locally purchased fresh fruit and vegetables but more thought should have been given to the problem of variety when the stores were arranged in UK

There was time for a range of activities I enjoyed being able to devote a little of each day to ornithology and the change in bird life throughout our stay provided a continuing interest for me My attempts at butterfly collecting and killing were not hugely successful but I did manage to list most of the species we found by the river

Although I was disappointed at my lack of involvement with the hovercraft my time in Nepal was not wasted I made many new friends- both civilian and service and learnt much from them Most importantly, however I was able to see something more of a most beautiful country and its people

and gain a little insight into some of its many problems

Acknowledgements

I should like to thank the Medical Director General (Naval) for the opportunity to join the expedition and for showing such personal interest

Many people helped in the preparations for the expedition but I am particularly grateful to Mr Richard Strong of the Institute of Naval Medicine and to Surgeon Lieutenant Commander N.F Lightfoot of RNH Haslar

The Flight Deck Officer

M J Ursell

It is by no means unusual for medical and dental officers serving in destroyers and frigates to be invited to act as Flight Deck Officers The author performed this duty in two DLGs *HMS Hampshire* and *HMS London* The job of Flight Deck Officer (FDO) provides a terrific insight into the operational activities of a modern warship and makes one acutely aware of the problems of operating a helicopter from a ship during both night and day in a vast variety of weather conditions

Training commences at the Flight Deck Training Unit, located at Portland naval base The course, which now lasts almost three weeks, consists of theoretical considerations such as fire fighting with regard to both ship and aircraft basic theory of helicopter flight specific helicopter operations refueling both on deck and in the air, and voice procedure, together with a myriad other necessary details

Practical training commences on a converted aircraft lighter which, in the halcyon days of the Fleet Air Arm, was used to transport fixed wing aircraft around the coast However it is now a static representation of a ship's flight deck and has the complex lighting and communications, as well as a ground crew required for all forms of helicopter operations Here the embryo FDO is confronted by a seemingly enormous helicopter (normally a Wessex V) to which he is standing rather too close for comfort The noise from the engines all of which are now gas turbines, and the rotors make rapid speech at the best of times not easy to understand very difficult indeed to interpret

Standard signs given by the pilot can be subject to misinterpretation by the uninitiated on one of my first days of FDO ing a drinking action produced a glass of orange squash for the pilot in fact, he required fuel for the aircraft! The objective is to ensure that the preparations launching final quarter mile of flight and the landing are all controlled by the FDO who has a tight time schedule wind (speed and direction) deck movement aircraft fuel and weapon state to contend with (fig 1) Up to the final quarter mile of the return flight and for tactical procedures, the flight is controlled on radar by a Helicopter Controller, who is in the operations room of the ship One communicates with the bridge operations room and flight deck crew via an 'umbilical cord' and switch box (fig 1) around one's waist To complete the ensemble, a lifejacket headset and microphone are worn, together with a matching vivid yellow cloth helmet and waistcoat! Thus dressed one uses flutter bats (fig 1) during daytime and illuminated wands at night to convey to the ground crew and aircraft the action which is desired Speech is only used to pass clearance to land wind speed and direction and verbal directions for height gain or loss on the approach to the flight deck

The uninitiated's speech patterns tend to be too conversational and vague, compared

Fig 1 *The FDO at work Launching a Wasp aircraft from the Leander class frigate HMS Jupiter*

with the other subscribers to the voice and radio air circuits who talk precise telegraphese

An embarrassing play back of one's early efforts might go —

FDO	*Ah — good morning bridge FDO here I wonder if you would be so kind as to test the er what's it called — the stop-gap lighting on the flight deck*
Bridge	*Roger*
FDO	*Ah jolly good that seems fine Thanks um I mean — Roger green and red lights I'm not entirely sure that the port light is awfully good Perhaps we should get it looked at*
Bridge	(tersely) *Roger — out*

This tends to generate a certain amount of ribaldry from one's brother officers and one's speech soon loses its verbiage and vagueness and becomes suitably clipped and to the point

Another facet of this niche in the ship's operational organisation is that of man management The senior maintenance rating often a senior chief is responsible for the aircraft's air worthiness usually a man of many years' experience who has served on carriers with fixed wing aircraft which paid off before I became a dental student *HMS Ocean Albion Victorious Eagle* and so on he's seen a few FDOs come and go His respect can only be gained by decisive action and an in depth knowledge of the subject which has to be acquired in a very short time

Twenty or so specialist ratings maintain the Wessex III helicopter in a DLG The aircraft is single-engined with a yellow top half and dark blue lower half and is equipped with radar and dipping sonar thus making it a most significant part of the ship's weapon capability For a night operation sortie the aircraft has two pilots an observer and a sonar trained aircrewman Transfers vetreps, surface searches etc , and most daytime missions require only one pilot

Night flying adds a new dimension to these activities Lighting has to be dim during the preliminary moving of the aircraft from its folded state in the hangar to the flight deck in order to preserve the night vision of both ground and aircrew Prior to this the briefing is held on the bridge again in very dim lighting, with a certain amount of stumbling and muttering in the dark A complex operational briefing could follow the meteorological report with a programme which could involve for example in flight refuelling of an American or Canadian Sea King (fig 2) or on deck rotor running refuel of other types of NATO helicopters

Fig 2 *Sea King refuelling in flight the evolution controlled by the FDO*

Signals at night have to be extremely clear and synchronisation of the lighting has to be spot on otherwise, confusion, the start of a slippery slide to disaster could occur

Judging the speed attitude and height of the aircraft on its return is especially important as after up to four hours of exacting and difficult flying the pilot may be tired His return is aided by a multi coloured light system which has a green central beam at 5° elevations from the ship Thus if he follows the green beam, he will arrive at the correct location so that after establishing a hover alongside the flight deck he can when indicated to do so move laterally until over the flight deck when again at the FDO s indication he will lose altitude until he lands

In rough weather it is important to land as the ship descends on the waves as the weight of the aircraft (13 500 pounds) going down and meeting the ship rising could damage the landing gear or start a dreaded reaction known as ground resonance which, unless halted by lifting off and landing again or cutting the engine and applying the rotor brake rapidly could cause the landing gear to collapse (fig 3) with consequent severe damage to the airframe and rotors

Mist or fog can present an additional hazard Obviously if this weather can be predicted then flying will not normally take place However, conditions can change over a ten or twenty minute period and one can thus be confronted with the hazardous process of trying to recover the helicopter The ship's radar will not normally be of much help at under a third of a mile so one has to rely on a visual recovery The helicopter will try and find the ship's wake so a high ship's speed is preferable To help identification smoke and flame floats are dropped into the wake, and foam usually used for fire fighting is also directed to one side of the wake

The flight deck and general ship s lighting is turned on at full brilliance and the aircraft s speed is a few knots above that of the ship, so there is a constant passage of information from the ship to the helicopter

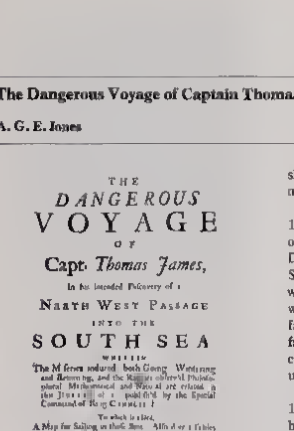
Fig 3 *Wessex III following collapse of port oleo (strut supporting front wheel) caused by ground resonance*

Although these duties require a commitment in time and effort often at unsocial hours, there is tremendous satisfaction in being a part of an efficient organisation and thus meeting the executive on their own ground and establishing that one can integrate into the ship's operational role as well as being a professional man

Maritime aviation is a field in which the Royal Navy has tremendous expertise and experience and to be positively involved is a challenge which I am sure would interest most young medical and dental officers who are fortunate enough to go to sea in frigates and destroyers

The Dangerous Voyage of Captain Thomas James, 1631-32

A. G. E. Jones


THE
DANGEROUS
VOYAGE
OF
Capt. Thomas James,
In his intended Discovery of a
NORTH WEST PASSAGE
INTO THE
SOUTH SEA
WHEREIN
The Miseries endured both Going, Wintering and Returning, and the Reasons observed, Philosophical, Mathematical and Nautical are related, in the Journal of the said Voyage by the Special Command of King CHARLES I.
To which is added,
A Map for Sailing in those Seas. Also divers Tables of the Actions of the Seasons of the Climate, & Work in Appendix concerning Longitude by Sir GILBERT HAMMON, Astronomy Reader to Gresham College.
The Second Edition Revised and Corrected.
LONDON
Printed in 1633, and now Reprinted for G. FLYNT at Hercules Head in Pope's Head Alley, Cornhill over against the Royal Exchange. MDCCLI
(Price bound 7s. 6d. 1 vol. and 6d. 2 vol.)

When Captain James sailed from Bristol on May 3 1631 under Royal patronage to seek a north west passage he planned to winter in the Arctic in his ship as others had occasionally done before him He prepared the ship as well as possible using his previous experience of the North Rather than a great ship he took a well equipped ship of 70 tons burthen — a bigger ship would have fallen apart when they grounded — a boat and a shallop For the crew of 22 he took only 'unmarried approved able and healthy seamen' — and he fitted out the ship with clothes, victuals and the best navigation instruments

He reached Bristol again on November 22 1632 with a much damaged ship and 28 officers and men out of 32 in the first place During that time he had sailed up Hudson Strait round part of Hudson Bay and had wintered off Danby Island in James Bay It was an anxious voyage, with rocks shoals, foul ground tide rips eddies overfalls ice frozen rigging and sails as well as gales, calms fog and distracted currents' off an unknown coast

At Danby Island, at the end of November 1631 he sank his ship to save her from being beaten to pieces floating her off in the spring with casks as buoys During the winter nearly all lived ashore in three huts of wattle and sails which were so cold that the cook's tubs in which he soaked his meat in front of the fire froze solid in the night—

Captain James had no thermometers but the temperature in James Bay commonly sinks to -40°F in winter So frostbite was a problem In December he noted

"*The 7th Day was so extremely cold that our Noses Cheeks and Hands did freeze as white as paper*

By experience they learned what not to do with frostbite as he explained in his "Seaman's Stile"

"*Upon divers the Cold has raised Blisters as big as Wallnuts This we imagined to come, by Reason that they came too hastily to the Fire*"

The cold was such that

"*It would moreover so freeze the Hair on*

our Eyelids that we could not see and I verily believe that it would have stifled a Man in a very few Hours

but, in the Evening they return d so disabled with Cold which did raise up Blisters under the Soles of their Feet and upon their Legs to the Bigness of Walnuts that they could not recover their former Estate which was not very well in a Fortnight after '

Captain James had a commonsense remedy for avoiding being up which encouraged frostbite At the end of October

'The 30th betimes in the Morning I caus d the Chirurgeon to cut away the Hair of my Head short and to shave away all the Hair on my Face for it was become intolerable and because it would be frozen so great with Ice Sickles '

Very little game or fish was obtained, so they lived on beef pork fish oatmeal bread, pease and a little oil from the ship's provisions As a result, scurvy presented itself early 'Sickness was first mentioned 76 days out from England These men soon recovered, but a fortnight later it became clear

'This Day was the first Time the Chirurgeon told me that there were divers of the Men tainted with Sickness

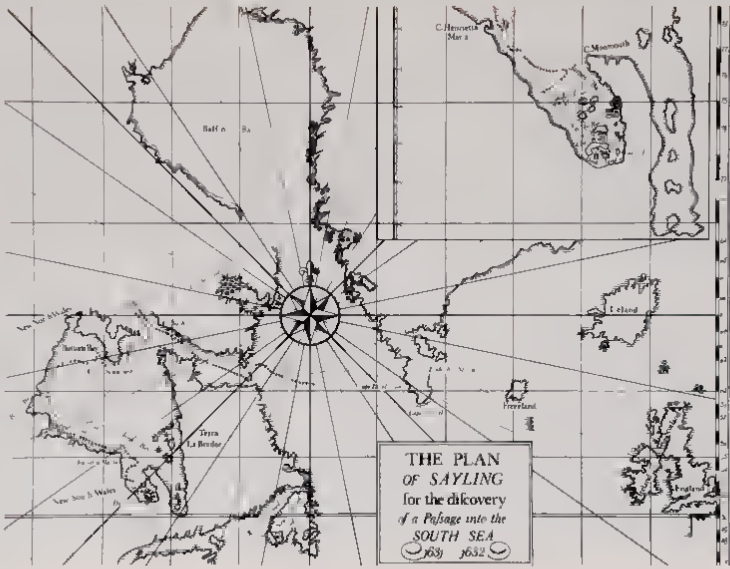
In the winter it afflicted nearly everybody The surgeon was assiduous in dealing with a sickness that he could not have seen before on this scale

Feb 1632 The Cold was extreme this Month, as at any Time we felt it this Year and many of our Men complain d of Infirmities Some of sore Mouths all the Teeth in their heads being loose their Gums swoln with black rotten Flesh which must every day be cut away The Pain was so sore on them that they could not eat their ordinary Meat Others complain d of Pain

in their Heads and their Breasts Some of Weakness in their Backs others of Aches in their Thighs and Knees And others of Swellings in their Legs Thus were two thirds of the Company under the Chirurgeon s Hand And yet, nevertheless they must work daily and go abroad to fetch Wood and Timber notwithstanding the most of them had no Shoes to put on

Such was the state of the sick in the huts that the Master and two seamen returned to the ship to sleep

'By lying abroad they avoided the hearing of the miserable Groanings and Lamentations of the sick Men all Night


THE PLAN
OF SAYLING
for the discovery
of a Passage into the
SOUTH SEA
1631 1632
Baffin Ba
C. Henrietta Maria
C. Monmouth
Iceland
Greenland
England
Terra La Bonne
New Sou th Wales

long enduring poor Souls intoleroble Torments

You may now ask me How these infirm Men could work? I will tell you Our Surgeon who was as diligent and sweet condition d Man as I ever saw would be up betimes in the Mornings and whilst he pick d their Teeth and cut away the dead Flesh from their Gums they would bathe their Thighs Knees, and Legs Yet after this was done half an Hour they would be able to go (and go they must) to Wood thro the Snow to the Ship and about other Business By Night they would be as bad again and then they must be bathed anoint d and their Mouths dress d again before they went to Bed And with this Diet and in this Manner we went thro our Miseries

May 1632 The 2d. it did snow and blow and was so could that we were forc d to keep House all Day This unexpected Cold at this Time of the Year did so vex our sick Men that they grew worse and worse We cannot now take them out of their Beds but they would swoon And we had much ado to keep Life in them

With the weakness of the sick in the spring in mind Captain James had put aside a tun of Alicant wine Which by Reason that the Wine had been frozen had lost his Vertue was little better than Water Even so it was welcome to the sick They were also cheered by finding in the ship a cask of very good beer

The carpenter died presumably of scurvy on May 18 The means of keeping them going was psychological

The 23rd our Boatswain a painful Man having been long sick which he had heartily resisted was taken with such a painful Ache in one of his Thighs that we verily thought he would have died presently He kept his Bed all Day in great Extremity and it was a Maxim among us that any one who kept his Bed two Days he could rise no more This made every Man to strive to keep up for Life

The crew were saved by the discovery at the end of May of vetches which were boiled for the sick with oil and vinegar This got them on their feet again quite quickly

For now our feeble sick Men that could not for their Lives stir these 2 or 3 Months can endure the Air and walk about the House our other sick Men gather Strength also And it was wonderful to see how soon they were recover d

The 15th (June) by this Time, our Men that were most feeble now grown strong, and can run about The Flesh of their Gums became settled again and their Teeth fasten d so that they can eat Beef with their Vetches

In July Captain James found ashore a herb resembling scurvy grass

I had some gather'd which we boiled with our Meat to Supper It was most excellent good, and far better than our Vetches After Supper we all went to seek more of it which we did to the Quantity of Two Bushels which did afterwards much refresh us

In May they had managed to kill a few ducks and geese The only medicines mentioned were Bottles of Sirrops and other liquid Things From that time onwards there were no more references to scurvy

One man fell through the ice and was drowned The surgeon had only one accident to treat when the capstan took charge

but our Gunner an honest diligent Man had his Leg taken betwixt the Cable

and the Capstang, which wrung off his Foot and tore all the Flesh off his Leg and crush'd the Bone to Pieces, and sorely bruis'd his whole Body in which miserable Manner he remain'd crying till we had recover'd ourselves, our Memory and Strengths to clear him. Whilst we were putting him and the rest down to the Chirurgeon the Ship drove into shallow Water. By Midnight the Chirurgeon had taken off the Gunner's leg at the Gartering Place, and dres'd the others that were hurt and bruis'd after which we comforted each other as well as we could.

The gunner died after two and a half months.

'The 19th, our Gunner (who as you may remember had his Leg cut off) languish'd irrecoverably and now grew very weak, desiring that for the little Time he had to live he might drink Sack altogether which I order'd he should.

The 22d in the Morning he died. An honest and strong-hearted Man. He had a close boarded Cabbin in the Gun-room which was very close indeed and as many Cloaths to him as was convenient (for he wanted no Cloaths) and a Pan of Coals and a Fire continually in his Cabbin. Notwithstanding which Warmth his Plaister would freeze at his Wound and his Bottle of Sack at his Head. We committed him at a good distance from the Ship into the Sea.'

This was not the end of the story for six months later the Master discovered the gunner under the gun room ports.

'The 19th in the Morning I sent men to dig him out, he was fast in the Ice his Head downwards and his Heel upward for he had but one Leg and the Plaister was yet at the Wound, in the Afternoon they had dig'd him clear out and he was as free from Noisomeness as when we first committed him to the Sea. This Alteration had the Ice and Water, and Time only wrought on him, that his Flesh would slip up and down on his Bones like a Glove on a Man's Hand. In the Evening we buried him by the others.'

Apart from these incidents the surgeon had little to do. In the early part of the voyage some of the crew were exhausted from pumping and raising the anchors and nights without sleep but they recovered easily. In later times whaling voyages to the Arctic were advertised as being particularly healthy and so Captain James found on his voyage.

From June onwards, like all who travel in the Barren Lands they were troubled with mosquitoes.

'The Muskitoes upon our coming away were most intolerable. We tore an old Flag to Pieces and made us Bags of it to put our Heads in but it was no Fortification against them. They would find Ways and Means to sting us that our Faces were swoln hard out in Pimples which would so itch and smart that we must needs rub and tear them. And these Flies indeed were more tormenting to us than all the Cold we had heretofore endured.

Tailpiece

In 1833 Dr John Rae (who later discovered the fate of the Franklin expedition) went out as surgeon in one of the Hudson Bay Company's ships and reported:

We went to an island called Charlton in James Bay — covered with snow when we reached it — and found some old houses which we repaired for winter quarters. We had scarcely any fresh meat with us and little lime juice or vegetables so it was not surprising that scurvy attacked the party. Of the 17 persons attackrd two died

before the spring and some of the others were in a very dangerous condition when, fortunately the spring sun cleared the snow off the ground and we found an abundance of cranberries (a famous antiscorbutic) The sick men were taken out during the warm part of the day and left to eat as many berries as they wished These with some soup made at a later date from the bud of the vetch restored the health of the invalids without almost any other antiscorbutic for the very small quantity of fresh meat obtained did not amount to over a few days' ration per man (Smith 1880)

Could this have been Captain James' hut that Rae found? There was a striking likeness between Rae's experience in James Bay and that of Captain Thomas James two centuries before

Reference:

SMITH F MURRAY (1880) *Arctic Expeditions British and Foreign* London

LETTERS TO THE EDITOR

On the eve of the withdrawal of the British Forces from Malta the Medical Director General (Naval) received this tribute to the Royal Naval Medical Service from Rear Admiral O N A Cecil Ed

Dear Admiral Rawlins

As the last Commander of the British Forces in Malta I wish to thank you most sincerely for all the good work done by the Royal Naval Medical Service over the years but especially during my time in office

I am sure that you will appreciate that in many ways it has not been an easy task to withdraw from the Island after 180 years here so it has been a very great comfort for us all to know that at least our physical care has been in good hands The sterling efforts of all ranks within the Medical Service and their co operation both with other branches of the Services here and with each other, has made a significant contribution to the withdrawal

In particular I have appreciated the personal interest which you and your predecessor have taken in the medical happenings here and for the assistance you have always provided so promptly when it has been sought

Yours sincerely,

O. Cecil

Sir,

Encouraged by your editorial (Spring 1979) I am prompted to forward a brief description of a personal episode involving the timely efforts of an RN Wessex helicopter pilot and crew in transporting my patient some three hundred miles in the Indian Ocean from my ship, *RFA Regent* to the island of Gan in the Maldives, some ten years ago

As a result of an accident the patient was suffering from a ruptured bladder (In the days of the Greeks this was, I believe regarded as inevitably fatal) Even now, if left longer than 24 hours, a chemical peritonitis may set in

This therefore called for some accurate timing on the part of both RN pilot and the captain of my ship, who brought us to just within the limits of the helicopter's flight (arriving at Gan with two minutes flying time to spare)

Within 24 hours the patient was successfully operated on by the RAF surgeons in Gan and the pilot and I flew back to my ship the next morning having enjoyed the hospitality of the island

I am etc

F. R. Corfe, MRCS, LRCP

Sir

The caption to the frontispiece of the Winter 1978 issue "Recompression incident at HMS Tamar states that the chamber at *HMS Tamar* is one of only two in the Far East (the other being at Subic Bay in the Philippines) This is only accurate if Singapore is no longer in the Far East

The Singapore Defence Forces have a modern chamber, with transfer under pressure capabilities at their base (ex *HMS Terror*). The Medical Officer in charge of hyperbaric and diving medicine is Major Jimmy How who is always very pleased to show medical visitors his facility

If I may be allowed a piece of pedantry, surely the chamber at *HMS Tamar* is a recompression chamber not a decompression chamber Hyperbaric chambers achieving more than atmospheric pressures are usually referred to as recompression chambers (RCCs) as they are normally used to recompress divers and are then decompressed back to atmospheric pressure A true decompression chamber is one able to reduce the pressure inside it to less than atmospheric i e a high altitude chamber

I am etc

John Knight MB BChir FFARACS
Secretary, South Pacific Underwater
Medicine Society
Surgeon Lieutenant RN 1955 1959

BOOK REVIEWS

HISTOPATHOLOGY OF CARDIAC ARRHYTHMIAS. Lino Rossi Second edition Pp 299 London Lloyd Luke (Medical Books) Ltd £23 00

Censorship of books is now clearly unnecessary A volume of less than 300 pages which sells for £23 will be seen by the reviewer and the librarian but will fall into few other hands unless its topic commands widespread and absorbing interest Such is not the case with this monograph which covers a highly specialised field Yet its subject is important and its principles are classical

Its author s stated intention is to harmonise anatomical with clinical and physiological knowledge and this he achieves by an impeccable exercise in the science and art of making and relating precise observations, a painstaking process which is the essence of scientific research Having reviewed the anatomy histology and embryology of the cardiac conducting tissues and then general pathology he deals separately with each of the arrhythmias and conduction disorders For every topic he reports the existing literature and then gives an account of his own vast experience tabulating the clinical electrographic and histological findings in each case In his amazing discussion he is thus able to create concepts of disturbed function which are justified by observed disease to so doing he challenges slovenly thinking and so performs a valuable and timely service for our need to give things a name often allows intelligent speculation to masquerade as fact Thus the term hemiblock represents a currently acceptable and even required concept among cardiologists and membership candidates and yet the histological evidence does not support this anatomical title for a cardiographic finding

The bibliography is enormous and the illustrations are profuse with two or three hundred photomicrographs The quality of reproduction is high but it will be a handicap to the struggling clinician and a disappointment to the pathologist that on only two pages are the plates in colour

In the presence of such manifest scholarship it seems ungrateful to cavil at the quality of the prose but the reader must be warned To write in a language other than one s own is an achievement which has its hazards Signor Rossi takes a number of liberties both inadvertent and (I think he would call them) advertent To use peripheral for peripheral and hypotrophy as the converse of hypertrophy are minor irritations but when he adjures us not to equivocate function with form one pauses momentarily before interpreting equate I am sure too that his inference to 'perseverant researchers was meant as a compliment to tenacity and not as a swipe at tedionsly repetitive psychotic scientists He enjoines new words too — could he affected scalaly instead of in isolation and he rearranges others It took daintcrais thought to interpret IA few ones have been indicated as very peculiar ll means some are specific The placement of the verb gets particularly savaged treatment but Rossi strides undaunted through these semantic minefields undiffident to the recurring blast of exploding syntax and he carries us with him for he has a compelling message

Are sweet the uses of polyglotty but a few ones are very peculiar!

TRWH

ULCERATIVE COLITIS M.J. Goodman and M Spiegelberg Pp 205 Chichester John Wiley & Sons Ltd £13 50

This is the fifth book in the Clinical Gastroenterology Monograph Series which is intended for the general physician and surgeon rather than primarily for the specialist gastroenterologist

Ulcerative colitis is a relatively common and potentially serious disease in the United Kingdom and many patients first present to the general physician or surgeon

The authors have successfully condensed their considerable experience of ulcerative colitis from the Oxford and Chicago Schools into an eminently readable account of all the clinical aspects of this disease They present comprehensive sections on the nature of ulcerative colitis its clinical presentation and the diagnosis and management The chapters on physical signs local complications and systemic complications especially hepatobiliary disorders are particularly good as are the sections on radiology and surgical treatment The sections on childhood colitis and colitis in pregnancy are valuable inclusions and there is a brief section on the social and psychological problems of the ileostomy patient

The book includes up to date discussions on the place of colonoscopy in diagnosis and surveillance treatment with disodium cromoglycate and the Koch continent ileostomy although they are necessarily brief and the conclusions in part are somewhat controversial The X ray and histological photographs are of a high standard and the book is well produced although the references and index are understandably relatively limited

The foreword by Kirsner of Chicago provides a succinct summary of the state of ulcerative colitis today and complements this excellent clinical monograph which should be of great value to the general physician and surgeon and those in training and should not be overlooked by the specialist gastroenterologist

RHH

DIAGNOSTIC RADIOLOGY IN CLINICAL MEDICINE R H Trempin 2nd Edition Pp 172 London Year Book Medical Publishers Ltd £9 75

I do not think I should have read this handbook had I not been burned by examination tasks from the day to day practice of my specialty As it is its small size excellent style good illustrations and sensibly presented material have diverted me while travelling

It is aimed at medical students but could be read with profit by all clinicians It really fulfills its foreword and presents useful information on radiology in clear succinct language and displays continuously humane enthusiastic concern for the welfare and comfort of the patient being studied and invokes common sense logic with regard to the choice of procedure and the preparation of the patient

The manual is a guide to fact and philosophy for radiological investigation and the introductory chapter deals with radiology in clinical medicine its costs the problems of radiation exposure and with the nature of the radiographic image The chapter headings and section headings set its direct thoughtful but practical style It is surprising that it comments on the basic geometric facts that can produce radiographic image distortion so often overlooked in evaluation of films

The chapter on chest films stresses that this is the film most likely to be viewed initially by the non radiologist and gives a basic method of observation to evaluate the wealth of information displayed on it Interpretation of the chest film is certainly a basic and challenging intellectual exercise for the interested and the handbook outlines the basic essential information It stresses the value of the eyeball technique based on experience rather than spuriously exact measurements and indices

In the chapter on skeletal radiology the book stresses that a knowledge of radiographic features can lead to prompt diagnosis of traumatic inflammatory neoplastic or metabolic disease which may provide clues in a clinically obscure situation as well as confirming a suspected diagnosis which should be true of all radiology

The brief chapter on angiography ultrasonography and computed axial (X ray) tomography ends with the warning that the indications and interactions of available diagnostic technology will continue to require your attention over the years as you attempt to provide positive care for your patients The style is American but the content true Care and thought are required in requesting radiological investigations

The chapter on abdominal films is an object lesson on the logical approach and reminds us while looking at the total film not to gaze at it but to search for specific information and in a later chapter the flow chart for radiologic investigation in obstructive jaundice is an object lesson on how to economise on procedures in a logical manner

Chapters on urinary tract radiologic investigation in perspective and the ninth and final chapter deals with skull films and neuroradiology sensibly and succinctly

There is an epilogue which states the obvious even for medical students If you haven't noticed the brevity and incompleteness of the contents of this manual you haven't been paying attention

The book ends with answers to the X ray quiz films and a surprisingly extensive bibliography of suggested further reading

The author and publishers are to be congratulated on an excellent practical and thought stimulating small manual which all could read with pleasure and profit

JAPH

LIVING WITH MULTIPLE SCLEROSIS Elizabeth Forsythe Pp 140 London Faber Paperbacks £2 50

Mrs Forsythe is not only a journalist and a medical practitioner she also suffers from multiple sclerosis and from the evidence of this short clear and very readable book she is also a lady of great common sense and unusual perception

It is probably true to say that no disease — with the possible exception of Cancer — is so feared or misunderstood by the layman as multiple sclerosis Her book gives the facts about the disorder and her own personal experience of it as simply as possible She recognised early that the only way to deal with a chronic disease is to come to some kind of terms with it and indeed throughout through she gives an immense amount of useful information about where help may be found from various agencies the main theme of her book is the use of one's own resources For example she has this far reaching advice

"Learn to listen, get to know people better, find out what makes them happy and try to understand their problems. There may be far greater demands upon them although they have not got a medical name for them and they have learned a great deal about how to cope with problems which could be useful to you."

Throughout the basic wisdom is expressed without a trace of self-pity.

This book should be read by all who come into contact with multiple sclerosis — and most of us do at some time or other. It can only enlarge our knowledge of the problems and perhaps tell us more than the medical textbooks about how doctors may help in the most practical way.

This slim volume can be recommended unreservedly as being chat through with hope rather than gloom and with optimism and a joy in living which transcends physical handicap. The author is clearly a remarkable person, she has written a book worthy of her.

JAMW

ABC OF OPHTHALMOLOGY P A Gardiner Pp 43 British Medical Association £2 50

This little book, produced in magazine form, is a collection of serialised articles which have appeared in the British Medical Journal. The articles were written by Mr Gardiner with the general practitioner in mind and as such present an excellent summary of the bare essentials of ophthalmology.

There are good sections on injuries, cataracts, glaucoma and squint as well as some potentially useful discussions on visual defects in childhood and in the elderly. The latter two sections are especially valuable to the general doctor, as is also the article on ophthalmic services available under the NHS.

There are a few points in the text with which one would disagree. One glaring example is the reference to Zoster Ophthalmicus as 'Herpes' and to Dendritic Ulcers as 'Herpiform' — thus risking confusion between the two conditions.

On the whole, however, this is a good book which might well find a place on the bookshelf of a Families Medical Officer or a ship's SMO.

PRACTICAL FOOD INSPECTION C R A Martin 9th edition Pp 636 London H K Lewis & Co Ltd £15 00

In which other book can one read the fine and grey details of the dressing of a slaughtered calf, the legal definition of using tobacco and the most interesting life history, migraticne and sexual brawlings of the salmon? First published in 1932, Martin's standard reference work for the Environmental Health Officer (Public Health Inspector always to the author) faces up to swine vesicular disease and the EEC while retaining much of the more leisured approach of the 1930's. It must have been tempting to eliminate some of the asides and anything not essential to the food inspector to prevent the book increasing to its present size. The temptation has been resisted and the book retains its character blending the up-to-date essential bones of the business with tasty tribits which make it much more digestible.

Not essential reading for every naval medical officer, this must be classed as a book for the specialist. Invaluable as a reference work for the Naval Medical Officer of Health — whose very name must delight the author — it contains much to edificate and fascinate the doctor with more than a gourmet's interest in food. Some might find the presentation rather old-fashioned and others will quibble at the author's misunderstanding of epidemiology (so increased risk of infection is not an 'epidemiological hazard'). Such foolie cannot detract from the comprehensive coverage of the subject of food inspection by an author who is not just an expert but a connoisseur. Martin's barristers as well as a doctor delivers his judgements at frequent intervals such as when he exempts from condemnation animals slaughtered after the chase, it being the custom for certain classes of the community to consume venison in an ill, tired and decomposing state. A book with such phrases can never be dull and if those who recall that drink is also a food will have to look at the legal section to discover what happened to the inspector who tested the rum and asked for half a pint.

DSW

CASR'S CHEST, HEART AND VASCULAR DISORDERS FOR PHYSIOTHERAPISTS Edited by Patricia A Downie FCSP Second edition Pp 373 London Faber & Faber £4.50

This extensively revised second edition of an established textbook will be welcomed by physiotherapists for whom it is primarily intended. The book is presented as a series of individual contributions by physiotherapists and doctors, each chapter being well supported by simple line diagrams amplifying key points in the text.

Commencing with a revision of essential anatomy and physiology of the cardiothoracic and vascular systems, following chapters deal with intensive care, thoracic surgery, common respiratory disorders and cardio-vascular problems.

Chapter 4 Auscultation and chapter 23 A use of lung function studies proved to be most interesting, the former providing an up to date analysis of breath sounds which should prove invaluable in the teaching of clinical skills.

Individual chapters are well produced and each concluded with an extensive reference list and bibliography but overall this edition suffers from a lack of efficient organisation in the placing together of the individual contributions to produce a logical progression of the subject matter. An irritating fault was the constant need to insert markers to act as reference points when following a particular interest.

Although the overall presentation tends to give an impression of a series of lecture notes lacking a cohesive and logical pattern, the textbook will prove a useful addition to any multi disciplinary team library on intensive care.

GJ

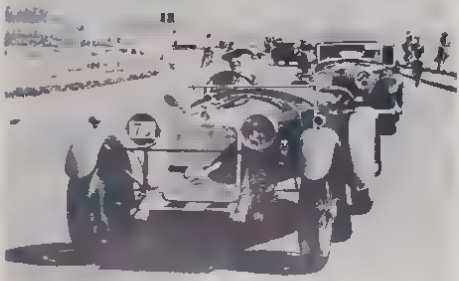
SYMPTOMS, SIGNS AND SYNDROMES — A MEDICAL GLOSSARY B Champney and F G Smiddy Pp 196 London Baillière Tindall £1 95

This small almost pocket sized book is designed to help nurses and other ancillary workers to understand exactly what the doctor is talking about. It contains in alphabetical order some 350 terms and syndromes used in the daily practice of hospital medicine as well as some rarer syndromes.

For nurses, physiotherapists and probably medical students this book will be of great value though it is hoped that any qualified doctor will know every entry.

OMH

Dr H. Cameron Wright — Memorial Address given by Professor E. C. Amoroso at St. Luke's Church, RNH Haslar, on April 24, 1979.



Courtesy of Michael Edwards Hovan

Having taken leave of all that is mortal of Horace Cameron Wright — Come to us all — we gather today in sadness to honour him who had embraced our lives with his friendship and to recall the things he did — the things he stood for.

Others might lend his accomplishments and recite the honours which had come to him.

We will remember his courage and his integrity, the mountains which guided his investigations like the flowers of the poet

daffodils
That come before the swallow dares and take
The winds of March with beauty

We will also remember the speed and fairness of his decisions, his swiftness to praise and his reluctance to blame, his rapidity in his own defence and his fury to protection of his friends.

Only those who knew him intimately as I did can have any idea of the exceeding kindliness of his nature and the overflowing warmth of his heart. I can aver with perfect truth that during the whole course of my long and intimate acquaintance with him — although he always spoke to the point strongly — I never heard him say an ill natured thing of anyone, even in wrath, though he might on occasion and in jest question one's paternity.

Though not himself a country man, he was physically and sartorially some townsmen's idea of one: tall, nimble of gait, wiry and attired in tweed hot jacket and baggy trousers — without overcoat — he loved and extolled the kindlier things of the countryside. Always predictably reasonable and calm he had a natural dignity which went with a certain shyness, and so was his meekness in the true Christian sense.

That said, it was not easy to infer what motivated Cam. Loved by many, he was known to few. Ambition was not a driving force for he never sought advancement or prestige and he rejected the second.

He was respected and admired by many by the devoted amateur, the privileged, the humble, the eminent. Recognition and adulation he eschewed, such events came to him not he to them, quietly he did what he wanted to do.

Cam was clearly an individualist with intense feelings and strongly held views. It followed that he did not take easily to any form of regimentation. He was determined and could be obstinate.

He was restless except in moments of relaxation, speaking rapidly and incisively with frequent and often abrupt change of topic. The intensity and restlessness of his nature were also reflected in his actions, as

exemplified by a desire to complete the job in hand and get on with the next task. He eliminated formality while always remaining a very serious minded and perhaps that hesitancy of his before stating a positive thought was an asset.

This hesitancy was significant for Cam was a shy man and it is remarkable that so shy a man should have had such an outstanding and indubitable gift for friendship. But shyness made him a good listener and it altogether failed to hide a jovially genial, humbly affectionate nature endowed with a very real sympathy for others. This met with its well merited response for he made very many friends of very many kinds, children loved him and Uncle Cam to his was affectionately known to them would drive his beer taking troop loads in his vintage Alpha Romeo (GJ 78) to the circus and to the cinema.

Cam seldom engaged in discussions of a personal nature and it was difficult to discern his philosophy. He was a member of the Anglican Church throughout his life. Although apparently not especially interested in its specific beliefs, he was currently fond of the minute of the Church of Rome. His striving to make discoveries that would benefit mankind was religious enough. In fact, his personal goodness of integrity, kindness and loyalty towards his friends were, for my taste, instinctive expressions of the Christian spirit.

His interests were immediate practical sort in all profound discussion of abstract or philosophical problems came less naturally.

In the matter of personal problems he was invariably sympathetic and in their practical aspects helpful. But to understand the esteem in which Cam was held during his life time, one must look beyond scientific achievement to the traits inherent in his character.

His values were courage, loyalty and integrity, both in science and in ordinary life and he assumed them in others. When this assumption was betrayed by results the same integrity prevented him ever overlooking it.

Ask him a trivial question, and he would come back weeks later with reference equations and the answer in his inimitable handwriting. Give him a drifting manuscript to read and he would annotate it as carefully and as conscientiously as if you were the MDG himself. Convince him by some flaw in your own integrity of vision that you were a man of straw and he was quite implacable. Deeply anxious not to be alone he was still forced by those same knightly standards to speak out against allies and friends who did not stick to the code.

It would be presumptuous on my part to voice in any detail the nature and significance of Cam's contributions to science and medicine since there are so many here who having shared more directly in his labours could speak with greater authority. Nonetheless it is appropriate in a world which has progressively narrowed from extreme and perhaps excessive specialisation to point to the phenomenal range and breadth of his interests encompassing as they did the fields of respiratory physiology and anaesthesiology, plastic surgery and surgical pathology, bone grafting and the application of ultrasound as a non-invasive means of performing cordotomy and much else. In addition to this Cam also had papers published in the Proceedings of the Royal Society of his studies of the effects of underwater blast and air embolism during decompression and had prepared no less than twenty five reports which were classified as secret and of which the subject matter cannot be disclosed.

But apart from his scientific work, which was of the highest distinction, Cam's activities in at least three separate spheres were legendary.

The first of these were his exploits on the hunting field — in Ireland he loved. In every corner of Kildare he was known and admired for his intrepid horsemanship in the saddle, he and his mount were one of a piece.

Secondly was the zest with which he serviced and maintained his vintage Alpha Romeo GJ 78, and which he pursued with an almost fanatical passion, everything was stamped and dated, even the screws were tabulated.

Thirdly was his practice of carrying out hazardous experiments on himself, which he never publicised, even before the events of the second world war he had performed experiments with Oxygen which entailed discomfort and death risk, and in many occasions later in life he underwent biochemical respiratory and underwater trauma that would have daunted a less courageous man. Once in 1965 he removed a tumour from the back of his left hand unanaesthetised.

Although himself the least assertive of men, he had a natural authority that commanded attention. Everybody who had contact with him recognised instinctively that his standards and qualities of leadership were high and his sense of justice unequivocal. But they also knew that they would never be required to accept risks which he himself would not have endeavoured.

To Cam leadership was inescapably a personal matter, his acceptance of responsibility was unquestioning. These characteristics were inherent in the man. For him one of the inevitable facts of human existence was that without leadership which commands confidence there can be no morale and without high morale neither institutions nor the individuals within them can realise their full potential.

During the second world war and afterwards here at Alverstoke and at *Dolphin*, Cam did not hesitate to take a severe dose of his own medicine in tackling the hazardous task of escaping from a sunken submarine, a task which too often has ended in tragic failure. In his endeavour to perfect the technique of escape in such circumstances Cam exposed himself to the full effect of underwater exploitation simply in order to test the reaction of the human body to blast. No substitute would suffice for this all important test, and neither was it consistent with conscription in the depths of the sea was enough to deter him from his experiments. This surely is the true scientific spirit in its best and of which it is hardly to speak on the basis of anything but faith for this is the region where medical and emotional practice their strange alchemy on one another.

Science is sometimes called to account for the horrors which it has unleashed upon the world, particularly in the field of war where unimagined weapons for the destruction of men and materials have been explored. But the answer of the scientist to these charges is clear, he is who has revealed some of the deepest secrets of nature for the benefit of humanity while the corruption of man has turned them upon himself for his own destruction.

Mankind an incalculable debt to the courage and genius of those who devote themselves often to obscurity as Cam did, to researches of practical utility that bring forth its fruits in rich abundance. Nor is the worth of research without its very real dangers to those who practice it.

There is a long and honourable record of men and women who have given their all, even life itself, in the interests of research discoveries and the world has learned little or nothing about them. Let not the work which Cam Wright pioneered go unforgotten. On the contrary may it lead to the hands of those valiant men and women here at Haslar, at Dolphin, at Alverstoke.

and everywhere that submariner work to the removal of one of the most dreaded risks in underwater activities

Those who were privileged to be Cam's colleagues in the RNPL will always associate the elegantly furbished operating theatre there with his presence a tall figure in a long green surgical gown moving rapid with gloved hands fingers interwoven elbows flexed body tilted slightly forward and with a quick darting gait peering over his half spectacles making fast minute adjustments and checking every minute detail to ensure that the animals the objects of his experiments were recorded the same rigorous and humane attention as would their human counterparts about to be operated upon

Although Cam enjoyed working at the RNPL at Alverstoke he did not at the outset find it all he expected In particular he was disappointed by the relative lack of collaboration between its different sections To him each seemed to exist within the walls of its own pre-occupation So that the achievements that might have been expected to arise from their proximity to each other continued to be unrealised This explains to a degree why he sought collaborators from outside the laboratory the majority of whom were distinguished clinicians and pathologists and it is perhaps in this that we can attribute Cam's absorption of the medical outlook and the surgical program which became such a second nature in him that later generations were surprised to learn that he himself was not medically qualified

If there was something unfulfilled in his life it was that he did not obtain the surgical qualification which he had sought so ardently and for so long and for which many of us felt he was more than eligible But this was not to be for though arrangements had been completed for him to do a course in experimental surgery at the Mayo Clinic leading to a Masters degree his failing eyesight thwarted the enterprise

Throughout his career Cam had been a pioneering scientist but there is no dispute that the fact that he found himself even more in his element after he met Professor H C Killey having previously known and worked with Sir Roy Cameron Sir Cecil Wakeley Sir James Watt Surgeon Rear Admiral Rutherford and Surgeon Vice Admiral Sir John Rawlins himself all of whom like Cam were committed to ensuring the safety of the lives of their submariners

When Cam retired from the RNPL he knew his capacities were by no means used up but he had feared that he would have no further opportunity to use them fully Professor Killey came to the rescue and offered him an appointment as Consultant Experimental Surgeon to the Eastman Dental Clinic Typically he insisted before accepting this post that he should only be remunerated for three days a week in case he had overestimated his capabilities He was nonetheless buoyant with the feeling of re-found usefulness in experimental work and some time before his death he had devised a stereo-taxic instrument for purposes of localising fibre tracts in the spinal chord his work with it in connection with his experiments with Professor Goodhuey of Southampton on the implication of ultra-sound in performing cardiotomy was sufficiently advanced to make successful completion practically certain.

Classical music (his favourite conductor was Sir John Barbirolli) the meeting of Kathleen Ferrier the art of Frank Brangwyn (whom he knew from his childhood days) and an abiding concern for the young, which found expression in the hundreds of letters and drawings among his papers from little children to Uncle Cam were his principal passions

Otherwise his great recreation all his adult life was his vintage Alpha Romeo and with horses He was as we have already noted an accomplished and mettled horseman and his hobbies behind the wheel of the Alpha Romeo and his exploits on the hunting field became so to say the talk of the town It was in keeping with his nature to accelerate rapidly and drive or gallop as fast as the law or the hounds allowed or perhaps a little faster Yet it should be added that Cam was a competent driver and throughout many hundreds and thousands of miles he had an accident free record

Cam had a passionate hatred of hypocrisy and pretension and was always ruthlessly outspoken in his condemnation of any such suspected defect Him man personal attribute was one of kindness and sympathy Yet there was always an aloofness about him But within was a different and much richer person deeply appreciative of human comradeship But this personality so likeable and so sincere had in addition to immense courage another characteristic — an iron will which did not permit the indulgence of self-pity and up to the very end even when he knew the full meaning of illness the entirety of which he had himself diagnosed he kept a brave face.

In the end he died swiftly here in Hasler — overlooking the Solent in the neighbourhood of his triumphs — well ahead of the frustrations of old age he would particularly have hated and as he himself would have chosen apart from his consideration of others

Ironically Cam died on April 1 1979

His last mortal act was to introduce me to his physicians But this brilliant mind was beginning to give way and soon it was hard to rouse him He wan worn out at last and in the lay staring fixedly no longer his shaggy white eyebrows only waiting to follow the vivid company in which he had played so spectacular a part on to the stage of history what was passing behind those black eyes? This we shall never know but whatever he saw or did not see one person must have been in the shadows — Elizabeth

His passing removes a legendary figure from the world of the submariner He was a giant who bestrode the domain with singular authority profound learning and a highly idiosyncratic mind Notably brilliant and courageous researches on the largest possible scale stand on record of Cam's achievements

These are finished but his influence always extraordinary is still alive We shall not see the like of him again

R I P

SERVICE NEWS

OBITUARIES

SURGEON VICE ADMIRAL SIR EDWARD GREESON KBE CB MD ChB Medical Director General of the Navy 1949 1952 died in Alderney Channel Islands on June 10 1979 at the age of 90 and an obituary will be published in the November issue

SIR CECIL WAKELEY KBE CB DSc LLD FRCS FRCS Ed FACS FRACS FRS Ed died on June 5 1979 at the age of 87 A past president of the Royal College of Surgeons of England he served in the Royal Navy as a Temporary Surgeon during the first world war and as a Temporary Surgeon Rear Admiral during the second An obituary will be published in the November issue

DR HORACE CAMERON WRIGHT BSc PhD, for many years Principal Scientific Officer at the Royal Naval Physiological Laboratory Alverstoke died at RNH Haslar on April 1 1979

ISPR writes

I was invited by the Editor to contribute a personal obituary on my friend and colleague the late Cam Wright But having attended the memorial service and having heard the memorial address given by the renowned physiologist Professor Amerose CBE FRS FRCP FRCS I would find it impossible to sum up the personality and achievements of this remarkable man in a conventional obituary Accordingly the Editor has agreed to print the memorial address in full (p 103) it paints a vivid portrait of one whose contributions to science and to the Royal Navy were unique

SURGEON CAPTAIN W A HOPKINS, OBE MD MCh RAO MRCPI RN Retd died on January 10 1979 at the age of 78

William Arthur Hopkins entered the Royal Navy as a Surgeon Lieutenant in January 1925 and was promoted Surgeon Lieutenant Commander in 1931 and Surgeon Commander in 1936 After serving in *HMS Excellent* and *Galatea* and at RNB Devonport he was appointed to RNH Chatham as specialist in bacteriology in November 1938 He held this appointment until 1944 being awarded the OBE in the 1943 Birthday Honours and the Gilbert Blane Medal for 1944

He then went to the RN Auxiliary Hospital Sydney as specialist in bacteriology followed by similar appointed SMO Medical Division RNH Plymouth

In 1945 he was admitted to the Order of the Hospital of St John of Jerusalem in the grade of Officer (Brother)

He was promoted Surgeon Captain in 1949 and after a spell at the RN Medical School he was appointed SMO Medical Division RNH Plymouth where he remained until his retirement in 1952 Subsequently he settled in Londonderry where he was Consultant Pathologist to Altnagelvin Hospital and Honorary Consultant Pathologist to the Northern Ireland Hospital Authority

SURGEON CAPTAIN (D) W G FINNIE, LDS RCS Eng RN Retd died suddenly at his home in Alverstoke on April 13 1979 at the age of 70

RWS writes

William Gordon Finnie entered the Royal Navy as a Surgeon Lieutenant (D) on August 10 1932 and after a course at Haslar served at Devonport Barrack before going to sea in *HMS Royal Oak* and *HMS Resolution* in the Mediterranean During this time he also served at RNH Malta for five months On his return to UK he was appointed to *HMS Ganges* and then served a further year at RNH Haslar before going to *HMS Tamar* in 1938 Later that year he married Enid Blair of the QARNNS

It was not until 1942 that he finally returned from the China Station and after a series of short appointments arrived in Gibraltar in December 1944 Whilst in *HMS Rooke* he was promoted Surgeon Commander (D) on December 31 1947

After the war he spent two years in the Training Squadron based on Portland and subsequently in September 1950 was appointed to *HMS President* for a course He then enjoyed two and a half years with the Royal Marines at Deal before being appointed to *HMS Dualdar* as a Senior Specialist

He was promoted Surgeon Captain (D) in January 1958 and went to Malta as Fleet Dental Surgeon to C in C Mediterranean His last appointment before retiring on April 24 1965 was as Command Dental Surgeon to Flag Officer Scotland and Northern Ireland

He was an enthusiastic and accomplished games player and whilst in the Far East played cricket and hockey for Royal Naval representative sides

After retirement he served for many years with the Scottish Dental Service in Scotland He had a heart attack in 1979 and never regained full health

To Enid and his two daughters we extend our deepest sympathy

SURGEON CAPTAIN (D) D M PAGE, BDS RN Retd died at his home at West Kilbride on March 8 1979 at the age of 65

KAJ writes

David Millar Page whose sudden death earlier this year was a shock to all who new him was born in Invercargill South Island New Zealand shortly before the outbreak of the first world war He was educated at Southland Boys High School where his father was on the staff for 47 years He trained at Otago University and after qualifying came direct to England to join the Royal Navy this he did at the time of the Munich crisis Shortly after completing his preliminary time in RNH Chatham he was lent RNZN for three years and saw service in *HMZNS Philomel* and *Achilles*

In 1943 he returned to England and was appointed to RNH Portsmouth He was promoted Surgeon Lieutenant Commander (D) in 1944 and served in *HMS Orlando* Then followed several interesting appointments including *HMS Trenncer HMHS Maine* and *HMS Vanguard* culminating in his promotion to Surgeon Commander (D) in December 1951 He went on course and became the Senior Specialist in Dental Surgery in RNH Chatham

Now came perhaps the most fortunate appointment of all for him as he was sent to *HMS Ganges* and there met a Naval Nursing Sister — Barbara Allan She became his wife in 1955 and together they moved to *HMS Tamar* where not for the first or last time he said the writer exchanged appointments This was a most happy venture for him as both his children were born in Hong Kong He returned to England a lonely man and was again appointed to *HMS Ganges* Promotion to Surgeon Captain (D) saw his return to the Far East as Fleet Dental Surgeon and then on to a final appointment on the staff of Flag Officer Scotland and Northern Ireland whence he retired in 1971

David was a quiet unassumingative man staunch and reliable We are all the poorer for his passing We share in the sorrow of his family and to Barbara Jean his daughter now in her final year at St Bartholomew s Hospital and John in his first year at Oxford University we offer our kindly thoughts

SURGEON COMMANDER J L S STEELE-PERKINS OBE LRCP, LRCS Ed LRFPS DDMS, RN Retd. died at Nassau in the Bahamas in September 1978 at the age of 66

Surgeon Captain R W Tipple writes

I first met Jan in 1946 as a house guest of his brother Derek Although the meeting was brief Jan epitomised for me the idea of a naval medical officer with his dashing dark good looks immaculate uniform with its three stripes campaign ribbons and wings He later served together in RNH Plymouth in 1952 where he was the ophthalmic specialist — and a very good one He was also a more than competent general surgeon

My early impression of him was confirmed and I felt that he would go to the very top of our branch a feeling I m sure which was shared by those who knew him He was a very good mess mate and Mary and he helped to make the hospital s gay convivial place to serve It was in this connexion that I learned that he had served as Staff Air Medical Officer to Admiral Vian mostly in *Formidable* throughout the Pacific War It was during this period that he earned his wings — actually on operational sorties!

Unfortunately rightly or wrongly Jan thought that Service pay was insufficient to look after his wife and daughters the way he wanted As a result with great misgivings — we discussed it long and often — he resigned from the Service in 1954 in spite of the many plans I had for his seniority The decision must have caused him much heartache because he loved the RN In June 1954 he went to Nassau to join an old friend and ex naval MO Victor Horan as ophthalmic consultant where he prospered exceedingly

Apart from family and his eye work his great love was golf which he played very well to a handicap of 2 He played in the naval side for years and captained the team on several occasions This prowess at golf stood him in good stead in his new life in Nassau He soon became a much sought after opponent or partner by the wealthy tourists who visited the several golf courses on the island This popularity was of no little help in building his practice and his family s social life In addition in spite of a busy practice he raised £100 000 to build an ophthalmic wing for the Princess Margaret Hospital Nassau for which he was awarded an OBE

From time to time he returned home to visit his daughters and friends and I looked forward to our rounds of golf and pleasant evenings with him and Mary

His last visit in 1977 was not a social one and he underwent major surgery in London so the news of a terminal illness was of no great surprise His death on September 1978 was nevertheless a great shock to me and my family and I m sure to his many friends all over the world

He leaves his dear wife Mary and four daughters and grandchildren domiciled as far apart as Canada Australia Nassau and UK

He is greatly missed

SURGEON COMMANDER D W PRATT MB BCh RN Retd died on January 24 1979 at the age of 68 years

Surgeon Captain N G B Horsey writes

Denis William Pratt was a legend in his own lifetime when senior officers lamented the lack of characters in the Service as we boys many of them could be thinking

of Denis as one of the most colourful examples. Tales of his exploits are legion typically it is widely believed that his activities during the Korean war were responsible for a signal from C in C Far East forbidding the further use of Service helicopters for duck shooting.

He joined the Royal Naval Medical Service in 1935 and achieved an impressive row of campaign medals after many years at sea all over the globe He was also an excellent urological surgeon as a beginner with the rag and bottle I was grateful for his understanding and patience with my short-comings and for the speed of his surgery He always finished his list by 1200 and usually completed The Times crossword during a coffee break into the bargain

He was an expert gardener and do-it yourself handyman but his chief delights were the gentlemanly pursuit of fish or game bird and convivial gatherings with his fellow officers in Medical Mess or Wardroom He was a close friend of the late Surgeon Commander Berta Walford and the two were universally and affectionately known as the Wicked Uncles probably because of the facility and regularity with which they subsumed us from the earnest pathos of learning Both were highly competent administrators and served their patients well but the work load was light in those palmy days much time was very properly spent in sporting activities and even more in talking about them in the Medical Mess. The Uncles possessed unbelievable stamina and were invariably the last to retire from such social occasions New Surgeon Lieutenants were track tested with alcoholic hurdles of Olympic proportions and woe betide the young man who attempted to leave before his hosts noisy of course required on the rugger field

Denis was never reticent about what he opined administrative folly and probably talked himself out of higher office He did much good to the Service however and deserved his happy retirement He never stopped working and was engaged in general practice in Gramere to the end in the intervals between fishing

Let us hope our Wicked Uncles have together found a salmon river a spot of shooting and a convivial pub somewhere across the Styx

Surgeon Commander J B Gornall writes

I recall very clearly my first evening in *HMS St Vincent* in March 1961 After dinner there strolled into the wardroom a large powerful looking man attired in sporting tweeds and in appearance not unlike James Robertson Justice (he otherwise) This was my introduction to Surgeon Commander Denis Pratt who had taken over as PMO a few days beforehand I had grown a beard towards the end of 1960 and this obviously pleased him for his opening remark was At last we have uniformity in the department

Denis Pratt was a very intelligent man who exhibited a quick sense of humour and enjoyed the occasional practical joke One source of constant irritation whilst living in *HMS St Vincent* was the continual filling of his dustbin with leaves by the juniors under training as this was easier than carrying them to the correct dump After repeated unsuccessful complaints he was seen on one dark Sunday afternoon carrying his dustbin full of leaves in the middle of the parade ground where he deposited the contents This rapidly produced the desired effect

He was excellent company a most gifted raconteur and being essentially an outdoor man excelled at fly fishing and was an expert shot He was very interested in rugby football It is believed that one of his happiest appointments was at Lossiemouth where he received many invitations to join shooting parties and was able to spend many enjoyable hours fishing the River Spey

Although direct in his manner and not one to suffer fools gladly he was very kind and those who worked for him came to regard him with deep respect tinged with affection He showed great loyalty to his juniors who were invariably introduced to visiting Admirals as

Meet my working party Sir

He had in his repertoire many colourful sayings to describe those people whose performances he considered to be sub standard like He could organise a dark room for a blind man

When Denis Pratt retired to civilian practice in the Lake District the Madras Branch lost one of its most colourful characters.

THE PARKES MEMORIAL PRIZE

The Parkes Memorial Prize for 1978/79 is to be awarded jointly to Surgeon Commanders W D MacNicoll and S D Scanlon for their paper

Submucosal resection the treatment of choice in the nasal obstruction syndrome" (*Journal of Laryngology and Otology* XCIII No 4 357 367)

RN MEDICAL AND DENTAL OFFICERS

HIGHER QUALIFICATIONS

Surgeon Captain P F Toal — FFCM

Surgeon Commander W R Esson — MFOM

Surgeon Commander F St C Gokien — PhD

APPOINTMENTS

As Professor of Naval Occupational Medicine

Surgeon Captain T P Oliver LMSSA MFCM DPH DIH MFOM Principal Medical Officer HM Naval Base Portsmouth and Consultant Adviser in Occupational Health to Chief Executive Royal Dockyards has been appointed the first Professor of Naval Occupational Medicine This new chair has been jointly established by the Faculty of Occupational Medicine of the Royal College of Physicians of London and the Royal Navy

As Medical Officer in Charge, Royal Naval Hospital, Gibraltar on June 8 1979 Surgeon Captain F M Kinsman OBE MRCS LRCP, DA

Surgeon Captain Kinsman was formerly Command Medical Officer to the Commander-in-Chief Naval Home Command

PROMOTIONS

To Surgeon Lieutenant Commander
D J Baker P J Shauler

To Surgeon Lieutenant Commander (D)
D L Thomas

To Surgeon Lieutenant
R Adley S M Arnold A T Cope T J R Francis, A C Hunt G Stevenson K M R Van Terheyden D A Vessey

To Acting Surgeon Lieutenant
P J Clarke R I Johnson

Provisional selections for promotion to date December 31 1979

To Surgeon Captain:
I Bertram A J Rutoni R A Snow

To Surgeon Captain (D)
G D Sharpe

To Surgeon Commander:
W Bissett B E Lambert G L Robertson
P J M Urwin

To Surgeon Commander (D)
N Harkness

NEW ENTRIES

Re-entered as Surgeon Lieutenant Commander A J Hirst
Surgeon Lieutenants S D James D V Luan

Surgeon Lieutenant (D) J D Victor

Surgeon Sub Lieutenants P M Craig McFeely R J N Garth
N A Hedger S L Hodkinson C R Jogamells

TRANSFERRED TO FULL CAREER COMMISSION
Surgeon Lieutenant Commander P J M Urwin

TRANSFERRED TO 8 YEAR CAREER COMMISSION
Surgeon Lieutenant (D) M A Critchlow J D Roberts James

RETIREMENTS

Surgeon Commander F G Bond
Surgeon Commander T M M Conway
Surgeon Commander M J Herley
Surgeon Commander M R Smith
Surgeon Lieutenant Commander D A Graham
Surgeon Lieutenant Commander B C Irwin

RELEASED FROM SHORT CAREER COMMISSION

Surgeon Lieutenant Commanders S G Bennett N M I Blank A J Brey
P M R Millard R A Moody
Surgeon Lieutenant Commander (D) J F Hawkins C M Patterson
W Stafford Wood M J Ursell

COMMANDER IN CHIEF'S COMMENDATION

Surgeon Lieutenant Commander G H G McMillan Royal Navy INM Alverstoke

During the night of 5th/6th July 1978 Surgeon Lieutenant Commander G H G McMillan Royal Navy was returning to his establishment on the Plymouth to Paddington Sleeper Train.

At approximately 0230 he was awakened by raised conversation and became aware that the sleeper compartment was filled with smoke. He dropped to the floor and shouted instructions to the other passengers to follow his example. In the ensuing panic observing that the compartment doors were locked, he crawled along the train corridor to the main bulkhead between the carriages assisting fellow passengers to safety on the way. He was then overcome by fumes and smoke before being rescued by a guard from the adjoining carriage.

Having regained consciousness at the side of the track he realised that there had been a major accident resulting in mass serious casualties and that all local emergency services would be required. Despite feeling unwell he rendered life saving treatment to the unconscious casualties in the immediate vicinity and organised others to render first aid care before leaving the scene to alert the emergency services from a nearby house and to summon local residents. He returned to the track with rescue apparatus and assisted with rescue operations until he was himself removed to hospital.

I commend Surgeon Lieutenant Commander G H G McMillan for his courageous and resourceful actions which were a credit to the Royal Navy and to the best traditions of the Service.

By Sir Richard Clayton Knight Commander of the Order of the Bath. Admiral in her Majesty's Fleet and Commander-in Chief of the Naval Home Command

4th April 1979

Surgeon Lieutenant Commander G H G McMillan receives the Commander in Chief's Commendation from Surgeon Rear Admiral J A B Harrison QHP. Surgeon Captain C O Hughes OBE QHP is also present

UNUSUAL JOB FOR RN MEDICAL OFFICER

Having assisted with events in Winchester Cathedral in the past Surgeon Commander A. L. Revell consultant anaesthetist at RNH Haslar was invited to accompany Winchester Cathedral Choir on their enormously successful 900th anniversary tour of Canada and the USA earlier this year. The choir of 14 professional male singers and 17 choristers sang in 13 cathedrals and churches and gave 9 concerts commencing in Ottawa and including a visit to Winchester Mass then celebrating its 75th anniversary and culminating in a finale at New York's Carnegie Hall. Apart from his medical duties Surgeon Commander Revell had the unenviable task of tour manager. A major problem was to ensure that 40 people arrived at the right address on time and with the right luggage since in 24 days the party slept in 10 different places flew in 5 different aeroplanes and rode in 20 different coaches and accommodation was invariably with private families

A GOLD AND A SILVER FOR RETIRED RNR MEDICAL OFFICER

A double celebration for Dr Frank Preston Deputy Director Medical Services British Airways On May 17 1979 at their 50th Annual Scientific Meeting in Washington D C the Aerospace Medical Association presented him with one of their principal awards — the Weiler M Boothby Award — which is sponsored annually by the American Aviation Insurance Agency for "outstanding research directed to the promotion of health and the prevention of disease in airline pilots"

This year too Dr Preston completed 25 years of airline pilot medical care. He has been involved in studies on sleep and shift working in British Airways aircrew since 1968 and in addition since 1965 has represented British Airways on the Anglo French Aviation Medical Committee the body involved with the physiological research work on the Concorde programme

Dr Preston qualified in aviation medicine at the RN Air Medical School *HMS Sultan* in 1947 with the present Medical Director General Surgeon Vice Admiral Sir John Rawlins and retired as a Surgeon Captain RNR having been awarded the VRD and clasp He was appointed QHP in 1973

MEDICAL SERVICE OFFICERS

PROMOTIONS

To Lieutenant
N Gallimore

To Acting Sub-Lieutenant
E. G Boetland D J Hayes M Higgins P J Newcombe

QUEEN ALEXANDRA'S ROYAL NAVAL NURSING SERVICE

PROMOTIONS

To Senior Nursing Sister
Misses S A Cox F Isherwood E. Kidd I Lewis M Pettinger

NEW ENTRIES

Nursing Sisters
Misses L. Brewer P M M Harvey L A Fonnds A L Robertson R E. Trebble

Clerical & Quarters Officer
Miss C J Oelves

RETIREMENT

Miss S H Way

ROYAL NAVAL RESERVE

PROMOTIONS

To Surgeon Lieutenant
M N M Buckney A P Parker

DOUBLE AWARD TO RETIRED RN MEDICAL OFFICER

Dai Tudor Photography

L to r Dr Kiranji Vakeria, Surgeon Vice Admiral Sir Douglas Black, President of the Royal College of Physicians and Mr Selwyn Taylor, Senior Vice President of the Royal College of Surgeons

On Saturday June 23 1979 in the Medical Mess Royal Naval Hospital Haslar the Harben Gold Medal of the Royal INstituta nl Public Health and Hygiene and the Gilbert Blana Gold Medal were presented to Surgeon Captain T L Cleave RN (Retd) Former recipients of the highly prestigious Harben Gold Medal include Lister Pasteur and Fleming so that Peter Cleave is elevated to the ranks of the most illustrious members of the medical profession while the simultaneous award of the Gilbert Blana Medal make him unique amongst his peers

Although only the most senior serving naval medical officers are likely to have served with Peter Cleave there can be few serving or civilian medical men and women who have not heard of him or the man constantly expounding theories regarding the correlation between rising incidences of heart and bowel disorders obesity diabetes varicose veins dental decay haemorrhoids and related diseases with under-consumption of dietary fibre and over-consumption of sugar and refined carbohydrates Indeed he is equally well known in lay circles where one of his books "The Saccharina Disease" has achieved massive popularity Fame however did not come quickly and it is some 40 years since Surgeon Captain Cleave acquired the nick name "Bran Man" for "having fed" sailors in World War II with unprocessed bran specially shipped in sackfuls to give them bowel movements as smooth as the guns they fired" to use his own words From these far-off days until recently he had been widely regarded as a crank but he stuck to his bullets and has now achieved his reward for as Dr Kiranji Vakeria Chairman of the Royal Institute of Public Health and Hygiene said in his presentation speech for the Harben Gold Medal "No man has contributed more to highlighting the baleful consequences of eating today's processed foods"

Tenacity of purpose was however not limited to his views on dietary fibre and Surgeon Vice Admiral Sir John Rawlins in his presentation speech for the Gilbert Blana Medal recounted many amusing anecdotes concerning the exploits of Peter Cleave when he was learning to dive and his prowess as a fisherman Whatever he did he did well and on this most auspicious occasion Peter Cleave fully rose to the challenge thanking the presenters of his medals in a speech full of wit and saying that his only regret was

Da dalus Photographs

Sir Douglas Black presenting Surgeon Captain Cleave with the Gilbert Blunt Medal

that his theories had adversely affected the fortunes of certain big businesses in the food world.

Altogether the luncheon was a scintillating function from the delightful champagne reception on the lawns outside the Medical Mess through an excellent meal with salmon trout such as Peter Cleave was wont to buy, and, of course, wholemeal rolls and fresh fruit salad. The Medical Mess and its food were a credit to Hoslar and it was made the more enjoyable by the company of so many famous personalities from the world of medicine. Truly a friendly, memorable, dignified but unpompous occasion of which the Royal Institute of Public Health and Medical Service can justly be proud, and one worthy of the man whom so many leading members of his profession had come to honour.

JDW

PUBLICATIONS BY RN MEDICAL OFFICERS

The following are some of the publications by RN medical officers during 1978. It is hoped to publish a similar list in each issue of the Summer issue of the Journal and medical officers who wish their papers to be included in the list should send details to the Editors at latest by May 1st.

ADAMSON R I W (1978) Disorders due to climatic environmental and other physical factors — Medical aspects of air travel other aspects In *Price's Textbook of the Practice of Medicine* 12th edition ed Sir Ronald Bodley Scott pp 321 322. Oxford University Press

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HUNT R H (1978) Increasing gallstone disease in Gibraltar — a clue to aetiology? *Gut* 19 A 986

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MEDICAL SERVICES SPORTS NEWS

The Chatham Tankard

An old silver one pint tankard discovered in the trophy store of HMS Nelson and inscribed Presented to the Medical Mess of RN Hospital Chatham by the Temporary Surgeons 1914 1918 will be competed for annually by the RNMS and RAMC The first ever RNMS soccer team played the inaugural match against the RAMC at Woolwich on February 4 and won 2 0

Rugby

The RNMS Rugby XV had an easy victory over the Army Medical Services at Aldershot on April 4 scoring 7 tries in their 41-0 victory

Athletics

The RN Senior Biathlon Championship was held at HMS Raleigh on March 24 This most gruelling event includes running 4000 metres and swimming 300 metres and was won by PMT F Dunleavy of the Joint Service School of Physiotherapy RAF Halton

Interport March 19 1979

Squash Men RNH Haslar 0 RNH Plymouth 5
Ladies RNH Haslar 0 RNH Plymouth 3
Netball RNH Haslar 19 RNH Plymouth 15
Rugby RNH Haslar 7 RNH Plymouth 7

The cricket and tennis interports will be held at Plymouth on July 1 and 2 1979

NOTICE

THE EDITOR invites medical and dental staff to send in original papers on professional subjects, naval personal experiences and other matters. Items of news and matters of interest to the naval medical service will be welcomed from ships and establishments on home and foreign stations. Notices of births, marriages and deaths are inserted free of charge to subscribers.

Articles and communications may be sent at any time to **The Editor, Journal of the Royal Naval Medical Service, Institute of Naval Medicine, Alverstoke, Hants, PO12 2DL.** Two copies should be submitted in typescript. Double spacing should be used throughout.

References — the name of the author and the date of publication are given in the text thus 'Smith (1935) believed this to be due etc.' or 'lack of basic information on the strategic fundamentals of the science of the sea (Carlson 1956)'. The list of authors quoted is put at the end of the article in alphabetical order. Each reference in the list should give in order: the author's name, initials, the year of publication (in brackets), the title of the paper, the name of the journal *in full*, the volume and the number of the first and last pages. For books, the place of publication should be stated and the publisher's name.

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For all others who are not in the above categories, the subscription is £2.40 per annum (post free) or 80p per single copy.

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HMS RECLAIM

The end of an=r t(s=page 152)

Editorial

Managing Duodenal Ulcer

In twenty years the management of sufferers with duodenal ulcer (DU) has changed radically. The days of prolonged bed rest in hospital, interminable hospital sick leave and long periods in reduced categories are gone for ever. Major developments in diagnosis and therapy now allow the early return of patients with DU to their ships.

Fibreoptic endoscopy provides a rapid and efficient method of assessing the upper gastrointestinal tract and although complementary to radiology may replace it when time is short and a clinical decision is urgently required[1]. Air contrast methods have improved our ability to make an accurate radiological diagnosis.

It is in therapy however that the greatest advances have been made. Early trials of Carbenoxolone in DU based on radiological assessment alone were disappointing but recent endoscopically controlled trials have shown significantly higher healing rates in the treated groups than in placebo although side effects may constitute a problem[2].

The development of H_2 receptor antagonists was a major advance. Cimetidine has been shown profoundly to inhibit gastric acid secretion stimulated by all known secretagogues. In ten published double blind trials 71 per cent of 539 patients on Cimetidine healed their ulcers in 4-6 weeks compared with 37 per cent of 448 on placebo. Maintenance treatment using 400-800 mg/day significantly reduced the relapse rate over a one year period in six published trials[1].

The wide distribution of histamine in the body must raise the question of the long term safety of H_2 receptor blockade. Experience with Cimetidine is now very extensive the world over and some unwanted effects are recognised. Drowsiness occurs as do gynaecomastia and musculo skeletal pains. There is as yet no good evidence that the weak anti androgenic effect demonstrated in animals has any significance for patients. The pharmacology, therapeutic efficacy and toxicology of Cimetidine have recently been comprehensively reviewed[1].

Two other forms of therapy have recently attracted attention. Antacids have for long been used in this country for symptomatic relief. High dose antacid therapy has never been popular except in the USA but recently Peterson and his colleagues[4] showed healing rates in DU which compared with Cimetidine. Large volumes of liquid antacid are required and although day time intragastric acidity is reduced as effectively as by Cimetidine this is not the case at night[5]. Tripotassium Citrato Bismuthate (De-Nol) is unusual in appearance, safe to take and in trials so far reported is as effective as Cimetidine in healing DU[6]. Although it is cumbersome to administer it warrants further study.

How should DU be managed in the Service? Whenever possible the diagnosis should be made before treatment, but this

cannot apply to the medical officer or LMA faced with a clinical diagnosis at sea Cimetidine is easy to take safe and effective and should be used in the standard dosage for at least four weeks If operational circumstances dictate this should be followed by maintenance therapy which will keep the great majority of patients symptom free Cimetidine will not however control bleeding nor prove effective in conditions other than peptic ulcer and reflux oesophagitis Full assessment is therefore always desirable at the first available opportunity so that long term management of what is a relapsing condition may be thoroughly considered

GJMT

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BASICS

The British Association of Immediate Care Schemes (BASICS) is concerned with the provision of immediate care at the scene of accidents and medical emergencies The Association was founded to extend the work of existing immediate care schemes in the United Kingdom and to initiate research into all aspects of immediate care

There are now some 60 General Practitioner schemes and 18 Hospital Flying Squads in operation and it is considered important that the medical staff who attend these accidents are suitably trained to administer immediate care Interest has been expressed by GP trainees and medical students in being taught immediate care in their curriculum and as this is an important part of a general practitioner s work the view is held that teaching time should be allocated for this purpose

The aims of BASICS are to foster co operation between existing schemes to encourage and aid the formation and expansion of schemes in the United Kingdom to strengthen and develop co operation between all services in dealing with emergencies of any scale which may result in injury or risk to life to encourage and assist research into all aspects of immediate care and accident prevention to raise standards of immediate care and training of all those who undertake to practise the discipline to produce a journal and other papers for the dissemination of information to members and other interested parties

The Association has an Executive Council whose headquarters are accommodated at the Royal College of General Practitioners There are also various committees concerned with the journal and publications Inter service relations and disaster planning radio communications and emergency equipment research and data collection

and training and symposia

It is clear that the aims of this Association are vitally important if life is to be preserved in those situations which require urgent resuscitation and immediate life saving procedures

In the Armed Services it is imperative that all medical officers who may have to deal with emergency situations are correctly and adequately trained in immediate care and therefore we should associate ourselves closely with the British Association and give it our full support

BASICS hold annual meetings the last of which was hosted in Southampton under the aegis of Dr Michael Moles when a very excellent contribution was provided by Surgeon Commander Frank Golden who read a paper on "Immersion Basics On this occasion it was a joint meeting with the Association of Emergency Medical Technicians (AEMT) whose aims are very similar to those of BASICS

AEMT was formed by ambulancemen to support the highest possible standards of pre hospital care for patients who are seriously ill or injured The key to this goal lies in training to an advanced level of knowledge and proficiency hand in hand with developments in medical knowledge and in the adoption of a highly professional approach to the work This provides a link with our own Medical Branch ratings who fulfil the role of Emergency Medical Technicians in support of doctors and nursing staff in the Royal Naval Medical Service and further emphasises the need to establish close links with both these organisations

JWR

A/M + H + N/S + P = OM

Until the last few years Occupational Medicine in the Navy had developed in the four separate almost watertight compartments of Aviation Medicine Hygiene (Preventive and Industrial Medicine) Submarine and Radiation Medicine and Physiology Each had its own virtually exclusive programme

Occupational Medicine is concerned with the effects of work on health and health on work at the interface of the workplace It is concerned with individual workers be they managers or manual officers or ratings It encompasses the problems of groups of workers be they divers or pilots welders or drivers It relates to the working environment be it physical or chemical or biological It remains essentially a clinical discipline albeit with non-clinical components and its practitioners may be found across the whole spectrum

The Naval Medical Service is unique among our Armed Forces in that in addition to the medical care of its uniformed personnel it has accepted the occupational health care of its civilian workforce the largest proportion of which is employed in the major naval bases (or dockyards) It can justly claim in this connection to be the oldest Occupational Health Service in the country dating as it does from 1625[1]

In Britain occupational physicians work almost exclusively outside the National Health Service Although recognised as a distinct and separate specialisation with its own Specialist Advisory Committee under the aegis of the Joint Committee for Higher Medical Training no separate academic focus existed The vision of the Royal College of Physicians of London in establishing a Faculty of Occupational Medicine within their college on 27 April 1978 was a milestone in development of Occupational Medicine The decision of the

Faculty to establish a joint Chair of Naval Occupational Medicine with the Royal Navy on April 5 1979 is indicative of the latter s contribution to Occupational Medicine The achievement of a satisfactory standard of occupational health care for any population is a team effort by occupational physicians occupational health nurses occupational hygienists supported by other medical and scientific research workers and statisticians ergonomists health physicists or from other disciplines The operational naval bases submarine bases and naval air stations as befit their occupational health needs will retain their own occupational physicians

Command Medical Officers and the Naval Medical Officers of Health (in all but name) have become the occupational physicians to Commanders in Chief and Area Flag Officers

In addition to this coal face role the occupational physicians at the Institute of Naval Medicine continue to play a vital operational support and research role for the Navy be it in the field of radiological protection (both ionising and non ionising) in underwater medicine both ashore and afloat In the field of survival at sea in ergonomics in the design of the new generation of helicopters in the factors affecting submarine operations to name but some of its tasks

A formal but flexible training programme leading to accreditation has been agreed with the Specialist Advisory Committee in Occupational Medicine and the proposed Higher Specialist (Senior Registrar) Training posts are being inspected and some are already approved

A new tri Service Consultant Approval Board schedule has been written The last ten years have seen the introduction of trained occupational health nurses to the naval bases The first Queen Alexandra s officers and ratings to be trained in this field are now being appointed to uniformed shore establishments

The Occupational Hygiene Unit has been established at INM and satellite units are about to blossom in each naval base and its associated Flag area

A more exciting role is slowly emerging for the naval health inspector On March 11 1804 in a letter to a friend Lord Nelson wrote The great thing in all military service is health and you will agree with me that it is easier for an officer to keep men healthy than for a physician to cure them

The naval occupational physician may be far from the cut and thrust of the surgeon s scalpel away from the electronics of the physician s coronary care unit but he is hopefully ensuring they need no such ministrations because of their occupation

TPO

Reference

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Submucous Resection: The Treatment of Choice in the Nose-Ear Distress Syndrome*

W. D. McNicoll and S. G. Scanlan

ABSTRACT

The combination of nasal septal deviation and Eustachian tube dysfunction in the absence of any other pathology constitutes the Nose-Ear Distress Syndrome. We have undertaken a clinical assessment of the relationship between uncomplicated deviation of the nasal septum and Eustachian tube dysfunction in naval personnel who are serving in environments of primarily increased barometric pressure.

One hundred and twenty candidates for the submarine diving and uncrew breaches of the Royal Navy who presented with the nose-ear distress syndrome were initially surveyed. None were able to equilibrate their middle ear pressures at an increased ambient pressure of 3 metres of water. Submucous resection was performed on 116 of whom 110 (94.83%) were able to equilibrate their middle ear pressures at an increased ambient pressure of 9 metres of water post-operatively.

Xenon 133 scintigraphy was performed on a further 25 recruits to delineate the post nasal airflow. This investigation was performed pre- and post-operatively. Pre-operatively scintigraphy showed the presence of turbulence in the post nasal space while post-operatively the turbulence was absent. All the candidates were unable to equilibrate their middle ear pressures pre-operatively but after submucous resection 24 (96%) were able to equilibrate their middle ear pressures at an increased barometric pressure of 9 metres of water.

Introduction

It is both an historically and currently held view of most otorhino laryngologists that deviation of the nasal septum with associated secondary infection and/or oedema in the paranasal sinuses nasal fossae and post nasal space is a frequent factor in the causation of tubal dysfunction. It is also widely accepted that deviation of the nasal septum alone is an unlikely cause of Eustachian tube dysfunction. The available authoritative textbooks concur with this view.

Whilst there is an obvious cause-effect relationship between infection and oedema on the one hand and Eustachian tube dysfunction on the other the authors noted that many subjects being presented for assessment for Submarine Escape Tank Training at HMS *Dolphin* were found to have tubal dysfunction in association with some degree of septal deviation either cartilaginous or bony or both. This finding was in the complete absence of infection or clinically recognisable oedema as ascertained by anterior and posterior rhinoscopy in the outpatient department or examination under general anaesthesia.

Since the subjects being surveyed were Royal Naval personnel who had volunteered to serve in environments of primarily increased barometric pressure it was decided to survey clinically the cause/effect relationship of uncomplicated nasal septal deviation and Eustachian tube dysfunction.

It had been noted by the authors individually for three years prior to the survey that adequate submucous resection of the nasal septum in patients who were unable to equilibrate their middle ear pressures in environments of increased ambient pressure almost invariably resulted in restoration of normal Eustachian tube function.

No investigation into the air currents in the nose or post-nasal space were performed either pre operatively or post operatively in the first 120 cases. Nevertheless we were of

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the opinion that distortion of the normal airflow in the post-nasal space in the presence of a nasal septal deviation was a prime cause for the resulting tubal dysfunction When the means of investigating the airflow in the post-nasal space became available to us, 25 candidates to the submarine branch of the Royal Navy underwent Xenon 133 scintigraphy.

Ventilatory Function of the Eustachian Tube

To the Eustachian tube is normally attributed the following functions

1 Middle ear ventilation
2 Equilibration of pressures on each side of the tympanic membrane
3 Middle ear drainage
4 Protection of the middle ear from sudden changes in barometric pressure
5 Protection of the middle ear from loud noise introduced into the post-nasal space

Various factors may affect the normal function of the Eustachian tube

1 Hydrostatic pressure of the venous system in the tubal and peritubal tissues
2 Obstruction of the tubal orifices by an hypertrophied pad of adenoids.
3 Obstruction of tube due to inflammation or oedema of the tubal mucosa due to either an infectious or an allergic cause
4 Failure in the functional integrity of the tubal mucociliary system or lymphatic drainage
5 The integrity of the opening mechanism of the Eustachian tube
6 Abnormal airflow in the post nasal space

Tubal Opening

When Eustachius first described the pharyngotympanic tube in the 16th century he believed that the tube was normally open Not until 1853 did Toynbee demonstrate that the tube was normally closed and that swallowing was the mechanism that opened the tube and on this depended the ventilation of the middle ear cleft

Rich in 1920 demonstrated that the normally closed tube opens when yawning and swallowing

The only muscle which is functionally related to the Eustachian tube is the tensor veli palatini The contraction of this muscle produces dilation of the tubal lumen as well as the tubal orifice (Rich 1920 McMyn 1940) The opening of the Eustachian tube and its orifice occurs due to anterior displacement of the fibromembranous wall of the tube from the cartilaginous wall of the tube The constrictor muscles play no part in this function Relaxation of the tensor veli palatini results in the passive apposition of the tubal walls

The Eustachian tube does not open during quiet or forced respiratory movements and is not affected by mouth breathing or by simple elevation of the soft palate

The levator veli palatini and the other accessory palatal muscles have very little influence on the lumen of the tube It has been suggested that the levator veli palatini may passively elevate the floor of the Eustachian tube thus reducing the resistance in widening the tubal lumen (Proctor 1967 Perlman 1967)

Deglutition occurs approximately once per minute in individuals who are awake while during sleep deglutition occurs approximately once every five minutes (Graves and Edwards 1944) Though deglutition may occur the Eustachian tube does not necessarily open with every swallow (Perlman 1951 Naunton and Gallaser 1967) The period during which the Eustachian tube remains open varies from 0 12 to 0 6 seconds (Perlman 1967 Miller 1965) The necessity to equilibrate the middle ear pressure with that contained in

the post-nasal space and the barometric pressure applied to the lateral aspect of the tympanic membrane results from the pressure gradients developed between the middle ear cleft and the post nasal space as a result of a change in the pressure in the middle ear cleft with respect to external barometric pressure

During closure of the Eustachian tube the middle ear cleft including the mastoid air cell system becomes a closed space containing gas There is a continuous slow absorption of oxygen and carbon dioxide by the mucosa of the middle ear cleft which results in a difference in composition of the gas in the middle ear from that of the external environment (Ingelstedt and Jonson 1967) A slight negative pressure is created in the middle ear this is equalised with atmospheric pressure during the intermittent opening of the Eustachian tube during deglutition Should the Eustachian tube remain closed so that equilibration cannot take place gas absorption continues until the partial pressures of the gases contained in the middle ear cleft and the blood vessels of the surrounding tissues are in balance Thus a greater negative pressure is created in the middle ear cleft (Flisberg *et al* 1963 Holmgren 1940 Perlman 1943)

The role of the Eustachian tube is to equilibrate the pressure on each side of the tympanic membrane With reference to the previous paragraph it can be seen that a continued development of a slight negative pressure in the middle ear is a normal feature before equilibration of middle ear and environmental pressure occurs

Jerger *et al* in 1972 showed that by using electro-acoustic impedance techniques most normal individuals demonstrate a maximum static compliance at 20 to 30 mm H_2O Over-pressure in the middle ear cleft may passively open the Eustachian tube This has been shown by Armstrong and Heim (1937) who demonstrated passive Eustachian tube opening with middle ear pressures of +200 mm of water Perlman in 1943 also produced similar figures at a pressure of 270 mm of water Flisberg in 1966 has also confirmed that the normal Eustachian tube cannot equilibrate a negative middle ear pressure without the muscular activity affected by deglutition except in cases of patulous Eustachian tube The nasopharyngeal tube may be opened at its orifice if there is sufficient pressure applied to the opening in the nasopharynx The nasopharyngeal pressure may be increased either by using the autoinflation technique of Valsalva or by performing Politzer s manoeuvre thereby forcing air into the middle ear cleft Van Dishoeck (1952) found +300 mm of water to be necessary while Perlman (1943) found that the increase in pressure approached +600 mm of water

The Locking Phenomenon

As extratympanic pressure increases a negative middle ear pressure develops (Armstrong and Heim 1937) The pressure gradients are equilibrated when the Eustachian tube opens by contraction of the tensor veli palatini When the external pressure reached 80 90 mm Hg (1 000 mm of water), the membrano cartilaginous tube was tightly collapsed and muscular activity could not overcome the pressure gradient

McGibbon (1942) demonstrated that the immediate cause is a mechanical collapse of the membranocartilaginous tube from the isthmus to the nasopharyngeal orifice As the atmospheric pressure increases as is found in descent in an aircraft or in a compression chamber extra tubal forces exert a pressure on the relatively soft fibrocartilaginous tube which then closes before air can enter the nasopharyngeal orifice The pressure is of such a degree that normal muscle activity cannot overcome it

Personnel Surveyed

The subjects included in this survey

consisted of recruit volunteers to the submarine diving and Fleet Air Arm branches of the Royal Navy In the case of the recruits to the submarine service all those seen were individuals who had otherwise been found medically fit for Submarine Escape Tank Training but unfit because of their inability to auto inflate their ears either at atmospheric pressure or when they were subjected to an increased barometric pressure equivalent to a depth of 3 metres of water (3 000 mm of water above atmospheric pressure) The same criteria apply to those recruits to the diving specialty

The aircraw candidates surveyed presented for otorhinological assessment as part of their initial examination which included a general medical examination prior to their being regarded as suitable for flying duties Only those who were found to be medically fit but who were unable to auto inflate their middle ear clefts are included in this survey

All candidates who enter the three specialities covered by this survey are taught to ventilate their middle ear clefts either by repeated swallowing or by performing the auto inflation technique of Valsalva when they are subjected to an increase in barometric pressure

Demonstrably we have investigated clinically a random selection of healthy young male adults who were assessed as fit for military service by the most rigorous of medical standards

The ages of the subjects surveyed ranged from 17 years to 35 years One hundred per cent of the candidates surveyed were prior to otorhinological examination totally unaware of symptoms associated with nasal obstruction and prior to being exposed to an environment of increased barometric pressure 98% of those surveyed had been totally unaware of any subjective difficulty in being able to auto inflate their middle ear clefts

The survey was carried out in the Ear Nose & Throat Department at the Royal Naval Hospital Haslar over an elective period of 15 months during the years 1973/74

A total number of 120 candidates were seen in the initial group as broken down in Table 1

TABLE [illegible]

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

Biological Parameters

Deviations of the nasal septum are generally accepted to be caused either by trauma or growth abnormality (Williams 1971 Thompson & Negus 1948) The trauma may be due to well remembered nasal injury an injury during infancy or childhood long forgotten or never recorded or to birth injury The growth abnormality is usually attributable to buckling of the nasal septum within fixed limits The septal deviation is readily discerned on anterior rhinoscopy when in addition bony spurs are also clearly seen Posterior rhinoscopy may reveal further deviations of the bony septum which may be obscured on anterior rhinoscopy invariably compensatory hypertrophy of the inferior turbinate on the side contralateral to the major deviation is present

For clinical purposes we have defined Eustachian tube dysfunction as a subjective inability to auto inflate the middle ear clefts under normal atmospheric conditions while otoscopy reveals an immobile tympanic membrane this latter finding being recorded as a negative valsalva

Initial Assessment

Each recruit referred had a complete otorhinological evaluation This included a

full history and examination Of those surveyed 100 per cent gave no history of allergic rhinitis or previous sinus pathology Ninety eight per cent had no complaints referable to their ears The two per cent who had a complaint referable to their ears complained of inability to auto inflate their ears when diving into a swimming pool travelling in trains which entered tunnels and on the descent in aircraft One hundred per cent had no symptoms of nasal obstruction! Nevertheless 100 per cent of those examined exhibited some degree of nasal septal deviation with an associated negative valsalva In 78 cases (65%) the negative valsalva was present on the side of the nasal septal deviation whilst in the remaining 42 cases (35%) with bilaterally negative valsalva there was a combined cartilaginous and bony nasal septal deformity involving both nasal airways Apart from these findings no other abnormality of the upper respiratory tract was found

All the subjects assessed underwent basic audiometric evaluation either as an initial naval entry requirement or as part of a concurrent survey of hearing loss in divers presently being conducted by the Haslar ORL Unit under the auspices of the MRC All the subjects surveyed were found to be within the audiometric norm All the candidates were subjected to tympanometry using a Peters AP 61 Impedance Meter One hundred per cent of the candidates had middle ear pressures between 50 mm of water and +10 mm of water These values are universally regarded as being within normal limits (Brooks 1969 Feldman 1967 Jerger *et al* 1972)

The tympanomanometric curves were of normal pattern All those surveyed were resubjected to an increased barometric pressure equivalent to three metres of water prior to commencing conservative treatment

Conservative Approach to the Syndrome

Initially an attempt was made to resolve this problem by what is generally regarded as conservative treatment It was decided that a six week course of conservative treatment should be instituted The subjects were placed on nasal decongestant therapy self politzerization and eustachian catheterization In 72 cases (60%) it was found that eustachian catheterization was physically impossible due to gross septal deviation In the remaining 48 cases (40%) although eustachian catheterization was successfully carried out repeated attempts at auto inflation of the middle ear clefts was attended by total failure to achieve a positive valsalva or subjective clearance of the middle ears involved Because compression chamber facilities were readily available to us all the candidates who after six weeks of conservative treatment had failed to achieve a positive valsalva (i e 100% of those subjects surveyed) were then further subjected to a controlled increase in barometric pressure equivalent to 3 metres of water One hundred per cent of candidates failed to equilibrate their middle ear pressures This parameter was finally assessed as the ultimate criterion for advising submucous resection of the nasal septum

Operative Approach to the Syndrome

In the presence of the total failure of conservative treatment there were two possible alternatives

1 To make the recruit permanently unfit for Submarine Escape Tank Training diving or aircrew duties
2 To advise operative correction of the nasal septal deformity

Four candidates refused operation and those who were not volunteers for the submarine service were treated conservatively for a further six weeks At the

end of this time they were once again subjected to a controlled increase in barometric pressure in the compression chamber All failed to equilibrate their middle ear pressures and were therefore made permanently unfit for Submarine Escape Tank Training The remaining 116 candidates were then subjected to the conventional operation of submucous resection of the nasal septum

Post-operative Assessment

Those who had undergone submucous resection of the cartilaginous and bony nasal septum were reviewed six weeks post operatively Twelve candidates (10 43%) were found to be valsalva negative The remaining 104 candidates were readily valsalva positive (89 66%) All 116 candidates were compressed Those who were clinically found to be valsalva positive (89 66%) were subjected to an increase in barometric pressure equivalent to 9 metres of water all were able to equilibrate their middle ear pressures The 12 candidates (10.34%) who were clinically found to be valsalva negative were compressed to an increased barometric pressure equivalent to 3 metres of water These 12 failed to equilibrate their middle ear pressures and were placed on a further six week course of conservative treatment at the end of which time they were once more subjected to a controlled increase in barometric pressure Six of the 12 (5 17%) equilibrated their middle ear pressures equivalent to 9 metres of water (Table 2) The remaining 6 failed to equilibrate their middle ear pressures (5 17%) at a pressure equivalent to 3 metres of water These six failures were [illegible] again on conservative therapy for a further six weeks at the end of which time they once again failed to equilibrate their middle ear pressures These six consistently had normal middle ear pressures as confirmed by tympanometry They were therefore made permanently unfit for SETT Of the 116 candidates subjected to operation 110 (94 83%) were able to equilibrate their middle ear pressures at an increased barometric pressure equivalent to 9 metres of water The results are tabulated in Tables 3 and 4

[illegible]

TABLE 4 TOTAL RESULTS

[illegible] operations	116
Total successes	[illegible]
Total failures	[illegible]
Overall success [illegible]	[illegible]

Delineation of Airflow in the Post Nasal Space in 25 Candidates by Use of Xenon 133 Scintigraphy

In November 1974 a method of assessing the airflow in the post nasal space was devised in the Department of Nuclear Medicine Royal Naval Hospital Haslar The patient inhaled Xenon 133 through his nose during normal respiration and a gamma ray scintillation camera was used to detect nuclear emissions from the Xenon 133 These were recorded on videotape

Xenon 133 scintigraphy was performed

on 25 candidates suffering from the nose ear distress syndrome The candidates underwent Xenon 133 scintigraphy pre-operatively and post operatively The subject having inhaled Xenon 133 was then requested to auto inflate his middle ear clefts All the subjects failed to introduce the Xenon 133 into their affected middle ears Postoperatively the same procedure was performed Twenty four subjects (96%) successfully auto inflated their middle ear clefts this being demonstrated by the presence of Xenon 133 in the middle ears It was clearly seen pre-operatively that on inhalation of the Xenon 133 there was marked turbulence of the airflow in the post nasal space Post-operatively (there now being no nasal septal deviation) the airflow in the post-nasal space did not exhibit any turbulence

Only one subject failed to auto inflate his middle ear cleft and persistently failed after further conservative treatment

Combined Results

The combined total of candidates involved in the survey was 145 Four candidates refused treatment The total number who were subjected to adequate submucous resection of the cartilaginous and bony nasal septum was 141 Of the 141 candidates 134 (95 04%) were able to successfully equilibrate their middle ear pressures when subjected to an increase in barometric pressure equivalent to 9 metres of water Seven candidates failed to equilibrate their middle ear pressures at an increase in barometric pressure equivalent to 3 metres of water (4 96%)

There was a 100 per cent success recorded in the aircrew and divers groups while in the group of submarine candidates there was an overall success of 94 5 per cent The results are tabulated in Table 5

Conclusion

We would like to emphasise that the conclusion we have drawn from this clinical trial is based on the assessable sequence of events which resulted from the correction of a readily recognisable septal deformity We have assessed the post nasal airflow using Xenon 133 and have shown that in the presence of a nasal septal deformity marked turbulence in the airflow in the post nasal space is produced In the series that we have investigated there has been also eustachian malfunction in association We have also shown that the turbulence of the air flow in the post nasal space may be abolished and normal eustachian function regained by adequate submucous resection of the nasal septum

We would further conclude that a physiologically normal Eustachian tube is prohibited from fulfilling its normal function of equilibrating the middle ear pressure not by any inherent pathology but as a result of distortion of the air current delivery to the nasopharyngeal orifice of the Eustachian tube due to abnormality of the nasal airway

We also believe that the turbulent airflow in the post nasal space has a marked drying effect on the mucous film in the post-nasal space especially in the region of the tubal orifice This drying effect would increase the viscosity of the mucus at the tubal orifice rendering it impossible for the mucous film to separate as it would do in a normal Eustachian tube when the tube opens Perlman (1951 1967) has suggested and experiments performed by Flisberg *et*

al (1963) confirm that the tubal opening begins on the tympanic side of the Eustachian tube and proceeds to the nasopharyngeal opening and that the mucous film breaks towards the nasopharynx

Clinical evidence of tubal normality in our series was gauged by the complete competence of the Eustachian tube to drain the middle ear clefts involved there were no cases of secretory otitis media or glue ear in any of the candidates surveyed Also tympanometry in all the cases produced normal middle ear pressure and normal tympanometric curves

The success rate that we have achieved we believe confirms the hypothesis from which this work first originated We are not suggesting that submucous resection of the nasal septum should be performed in all cases of eustachian malfunction But what we do suggest is that in cases of eustachian malfunction in which there is no history of paranasal sinus disease or allergic rhinitis but where there is some degree of nasal septal deformity found on examination be it mild or gross adequate resection of the cartilaginous and bony septum will be of marked benefit

Acknowledgements

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Fatigue Fractures of the Upper End of the Femur

J Bertram

Introduction

The idea that normal bone may fracture without there being any obvious trauma has been known for over 90 years and in more recent years it has been accepted that this is a fatigue phenomenon Fatigue fractures of the femoral neck were first described in 1905 (fig 1)

Fig 1 Fatigue fracture of the femoral neck

When the bone is normal fatigue fractures only occur in relation to unaccustomed activity and thus a fatigue failure may be defined as a fracture usually incomplete occurring in the absence of any traumatic episode but related to unaccustomed activity

When the bone is abnormal similar incomplete fractures occur and have been known for many years If the bone is softened as in osteomalacia the appearance of fatigue failure is known as a Looser's zone When bone is more brittle than normal as in Paget s disease and other forms of osteosclerosis they are usually known as fissure fractures These fractures occur without there being any unaccustomed activity in other words they occur with normal day to day activity The other feature about the fissure fractures in Paget s disease is that they are prone to become complete whereas the Looser zones although they may be visible for many months rarely appear to result in a complete fracture

Material

The opinions expressed in this paper are derived from firstly a study of over 100 fatigue fractures occurring in the bones of the lower limbs of healthy young Service recruits (Bertram 1970) and secondly a review of the literature on the subject

Clinical Types

It became obvious from these studies that from a clinical point of view fatigue fractures behaved in one of two ways

Most patients have a fairly long history

often lasting many months with increasing pain whilst exercising and eventually the pain prevents the patient taking any exercise at all However the fractures remain incomplete On the contrary a few patients appear to progress to complete fractures of the tibia and femur with only a very short history

It therefore appears that the fractures occurring in normal bone have a similar picture to those occurring in abnormal bone namely those with a long history corresponding to patients with softened bone and those with a short history behaving like patients with osteosclerotic bone

The difference in the clinical behaviour can be matched to differences in the site of occurrence of the fractures and the radiological appearances

Sites of Fractures

Most fractures with a long history occur on the inferior aspect of the neck of the femur and the medial aspect of the upper end of the shaft of the femur namely the concave surface of the femur

Those fractures which have a short history which progress rapidly to completion occur on the superior aspect of the neck of the femur and on the lateral aspect of the upper shaft of the femur namely the convex surface of the femur

Radiological Appearances

In the fractures with a long history as might be expected callus formation is seen around the fracture although the fracture line itself may not be so obvious Much of the callus is within the bone but there is usually also some external callus

In the other type of fracture with the short history there is simply a fracture line visible with no callus formation Such fractures are not often seen in normal bone but the appearance is common in the Paget's type of fissure fracture Even though these fractures may have been present for many months they often do not show any sign of healing

Incidence

From fig 2 it can be seen that the incidence of fractures occurring in the femur as a whole is very low in terms of percentage Most of the femoral fractures occur around the upper end of the femur but they may also occur at other sites such as the mid shaft or in the lower third

%		Metatarsal	Calcaneum	Fibula	Tibia	Femur	Pelvis
Civilians	1963	70 7	8 7	2	1 8	3 2	0 5
American Army Recruits	1952	91			7	0 5	0
	1959	75	6	0	8	4	6
	1966	37 3	29 7	3 4	25 4	3 4	0 4
American Marine Corps Recruits	1968	5	26		17	4	1
Royal Marine Recruits	1968	33 4	6	10	45	5 8	0

Fig 2 *Incidence of fractures of the pelvis and lower limb*

Biomechanical Factors and Analysis

Examination of the biomechanical aspects of these fractures will indicate why there are two different types of fracture When any solid material fails it may do so in one of two ways (fig 3) First and by far the most common is failure in tension (or distraction) Here once failure has started a crack rapidly develops and it does not need much force to ensure the continuation of the failure On the contrary if failure occurs in compression then the situation remains relatively stable and considerable force is required to make the failure progress This latter type of failure is very uncommon in clinical practice

These two types of failure correspond very closely to the observed clinical behaviour of fatigue failure of bone

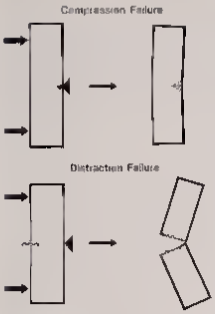

Fig 3 *Types of mechanical failure*

If acute traumatic fractures are considered it is well known that in children such fractures tend to be incomplete the so called greenstick fracture presumably named because young green wood tends to bend rather than break whereas old dry wood is brittle and breaks cleanly Again the two types of failure correspond to the two theoretical types of failure shown in fig 3 Injury to adult bone usually results in failure in tension with complete fracture

As already stated in engineering practice compression failure is rare but tension failure is common However in normal bone the usual mode of fatigue failure is from compression In abnormal bone compression failure is more common when the bone is softened as in osteomalacia and tension failure is more common when the bone is brittle as in Paget s disease and osteosclerosis

It can be argued that the structure of bone which is a composite material may have a bearing on the way in which it fails When the matrix is predominant as in young bone and osteomalacia it appears that the bone is resistant to tension failure Conversely patients that have relatively less matrix and more mineral tend to suffer tension failure In the author s opinion the subcapital fracture occurring in elderly osteoporotic patients is more likely to be a fatigue fracture which becomes complete and causes the patient to fall, rather than a fracture occurring as a result of a fall The fracture is basically a transverse fracture with an inferior break and this is exactly what happens in any tension fatigue fracture of bone which becomes complete The initial part of the fracture line is transverse and as the bone finally gives way the fracture line extends obliquely across the remainder of the bone If an elderly patient falls over on to the hip the most likely type of fracture to occur is the impacted fracture with abduction and this fracture is occasionally seen However most of the fractures are of a displaced nature which suggests that the fracture occurs and causes the fall rather than the reverse

Although the inherent structure of bone may have a part to play in determining the type of failure which occurs in bone under stress other factors must be considered

During normal activities stress within a bone is due to loading partly from weight bearing and partly from muscle action

In the femur weight bearing results in compression of the concave aspect of the femur namely the inferior aspect of the neck of the femur and the medial and posterior cortices of the shaft There is a tension stress in the superior part of the neck of the femur and the cortex of the anterior and lateral aspects of the shaft of the femur

The compression stress is considerably reinforced by certain muscle groups (fig 4) which act with a considerable mechanical advantage namely the hamstring and adductor muscles The tension stress in the

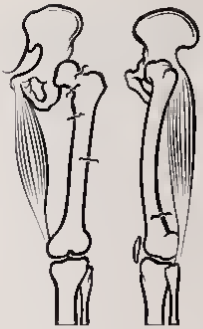

Fig 4 *Compression stress in relation to muscle groups*

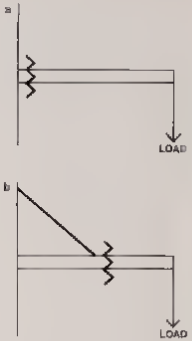

Fig 5 *Stress failure of a supported beam*

femur is to some extent absorbed by the wide attachment of the quadriceps muscles and these muscles when they contract also reduce the tension stress upon the shaft but of course not on the neck of the femur

Thus the combination of weight bearing and muscle action is to raise compression stress to a high level on the under surface of the neck of the femur and the tension stress on the upper surface of the neck of the femur If the structure of the femur is examined it is seen that at the area of maximum compression stress the structure of the femur is very strong namely the calcar femorale

Another observation has to be explained namely that the sites at which fatigue fractures occur is very constant Stress concentration must therefore be occurring at the site of failure

If we look at failure of a supported beam (fig 5) we see that failure occurs close to the supported point Introduction of a stay or other support will move the point of failure

In the human body the muscles ligaments and joint capsules attached to bone act as stays and are responsible for localising stress in the bone Fatigue fractures are found in areas of bone which do not have muscle or ligament attachments the fractures being located in bone lying next to or between attachments of muscles ligaments or capsule

Differential Diagnosis

Perhaps all the theoretical conjecture is of little importance but there is a very important need to recognise the fatigue failure in bone when it occurs The most important differential diagnoses are infection and tumour and there are several records of patients having undergone amputation for suspected tumour

Treatment

Apart from making the correct diagnosis the next most important point to recognise is whether the fracture is of compression type or tension type

The treatment of compression failure in normal bone is simple since all that is required is for the provoking activity to be stopped The fracture will then heal Compression failure occurring in abnormal bone will heal once the bone abnormality is corrected

In tension fractures however the danger of the failure becoming complete must be recognised Tension failure of the neck of the femur occurring either in normal or abnormal bone if discovered before complete fracture occurs should be treated by prophylactic pinning of the neck of the femur using multiple Moore s or similar pins It is also recommended that tension failure occurring just distal to the trochanters and this is more common in Paget s disease should be treated fairly actively A period of bed rest with or without traction until pain and tenderness have settled will be required Thereafter the patient may mobilise non weight bearing until the fracture has healed In Paget s disease medical treatment may well help in the healing of the fractures

If complete fracture does occur then the course of treatment does not differ in any way from a similar acute traumatic fracture In Paget s disease tension fracture of the neck of the femur with displacement does not unite and prosthetic replacement will be required

Conclusion

Fatigue fractures occur around the upper end of the femur but are uncommon when the bone is normal

They may be divided into two types as elsewhere in the skeleton namely compression failure and tension failure

Compression failure is benign and occurs in normal or osteomalacic bone on the concave surface Tension failure rapidly progresses to become a complete fracture and occurs on the convex surface This is the most common failure in Paget s disease and perhaps the elderly osteoporotic

Compression fractures occurring in normal bone will heal if the provoking activity is discontinued and in abnormal bone treatment of the bone disease will also result in healing

Tension fractures need active treatment and those occurring in the neck of the femur should be pinned prophylactically to prevent progression

The treatment of complete and displaced fractures is no different from the treatment of similar acute traumatic fractures If a sub capital fracture occurs in Paget s disease prosthetic replacement will be required

Summary

Fatigue fractures of the upper end of the femur are uncommon Two types of fatigue fracture are obvious as elsewhere in the body and the two types may be differentiated by their symptomatology the site at which they occur and the radiological appearances

Biomechanical analysis reveals the nature of the two types of stress fracture namely compression and tension

The importance of the differential diagnosis is mentioned

The treatment of fatigue fractures is outlined and the importance of identifying the nature of the fracture is emphasised

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Posthitis Xerotica Obliterans

J. D. Buchanan, M. D. Catterall and P. C. Briggs

ABSTRACT

Posthitis Xerotica Obliterans is a chronic sclerosing and atrophic disease of the prepuce which commonly results in phimosis. A 18 month prospective study has demonstrated an overall incidence of 18 per cent amongst 75 routine circumcision specimens with four cases affecting prepubertal children.

Introduction

Posthitis Xerotica Obliterans (PXO) is a localised form of Lichen Sclerosus et Atrophicus (LSA) affecting the prepuce. It tends to represent the first stage of a disease which may progress to involve the glans penis when it is referred to as Balanitis Xerotica Obliterans (BXO). This latter term was used by Stühmer (1928) to describe a condition which affected five young males following circumcision. Delbanco (1908) had previously mentioned three identical cases under the heading kraurosis penis. Laymon and Freeman (1944) reported further examples of the condition. The confused terminology was subsequently rationalized by Laymon (1951) in a review of the histological appearances in kraurosis penis, BXO and LSA in which he concluded that the three conditions represented one disease process.

In the uncircumcised patient PXO produces a sclerotic band 1-2 cms from the distal end, often with adhesions between the prepuce and glans. This eventually leads to phimosis and a non-retractile prepuce. Progression to involve the glans, urethral meatus and fossa navicularis (BXO) may then occur.

We suspected that undiagnosed PXO might be a common cause of phimosis and have therefore undertaken a prospective clinical and histological study in order to investigate its incidence in patients presenting for circumcision at the Royal Naval Hospital, Haslar.

Materials and Methods

All prepuces removed by circumcision between October 1977 and January 1979 were examined. Tissues were routinely fixed in 10 per cent buffered formol saline, embedded in paraffin wax and sectioned at 5μ. Sections were stained by Haematoxylin and Eosin, Elastic Van Gieson (Elastic and Collagen) and Gordon and Sweets method for reticulin.

The following criteria were used for a diagnosis of PXO: hyperkeratosis, atrophy

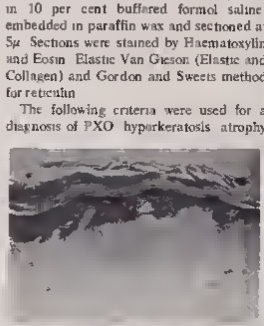

Fig 1 [illegible] of [illegible], the mean [illegible] epithelium [illegible] of collagen in the upper dermis [illegible] an inflammatory infiltrate (H&E 60)

of the stratum malpighii with flattening of the rete pegs, oedema and homogenization of the upper dermal collagen with loss of elastic fibres and an inflammatory infiltrate in the mid dermis (fig 1)

Results

Seventy-five prepuces were examined from patients between 7 and 66 years — the majority falling in the 10 to 30 age group with 10 cases under 14 years Clinical details were available for 66 cases and the reasons for referral were determined in these patients (Table 1)

Twelve specimens (16%) showed classical changes of PXO and in the prepubertal group four cases (40%) were identified (fig 2)

If those cases with gross clinically diagnosable PXO are excluded the incidence of unsuspected PXO was 4 5 per cent and is shown in figure 2 There were also 22 cases of Posthitis Circumscripta Chronica (chronic dermatitis) and 4 cases of acute Ulcerative Posthitis with a residue of 37 cases which showed no significant pathology

The predominant symptoms in the 12 cases of PXO are listed in Table 2 Careful preoperative examination revealed clinical evidence of PXO in 9 of the 12 cases which were histologically confirmed and the three patients in whom the diagnosis was missed were prepubertal children There was no apparent relationship between the incidence of PXO and either marital status or race

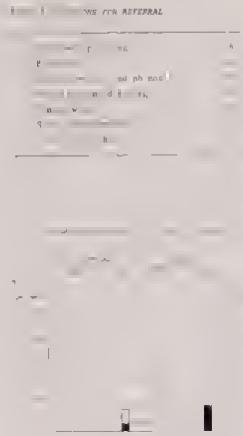

Fig 2

TABLE 2 [illegible]

Non circumcised [illegible]	[illegible]
Preputial [illegible]	[illegible]
Haematuria	[illegible]
Pain and swelling	[illegible]
Infection [illegible]	[illegible]

Discussion

BXO/PXO has an age range between 4 80 years with the majority of cases falling in the 30 50 group

The largest reported series of PXO is that of Schinella and Miranda (1974) who studied 524 circumcision specimens retrospectively and discovered an unsuspected incidence of 3 6 per cent a figure closely similar to our unsuspected incidence of 4 5 per cent Catterall and Oates (1962) reported the first case of PXO in a child following which similar prepubertal cases were reported from various countries (Weitzner 1972 Mikat Ackerman and Mikat 1973 McKay Fuqua and Weinberg 1973) Like LSA in

the female the aetiology remains a mystery and most cases are regarded as occurring spontaneously though an association has been noted with circumcision balano posthitis dorsal incision of the prepuce and preputial tear (Laymon 1951)

The disease begins as small erythematous areas that coalesce to form plaques with well defined margins Affected tissue is atrophic and liable to fissuring and erosion (figs 3 and 4) Subepidermal bullae may sometimes accompany the cicatrical changes Sclerosis of the prepuce and adhesions between the prepuce and glans lead to phimosis and a non retractile prepuce The condition is slowly progressive and as the urethral meatus is involved it becomes oedematous and indurated with a red halo (fig 3) Meatal stenosis may ensue with urinary obstruction and dysuria in long established cases (Bainbridge 1971) Malignant change is rare Clinically the condition may be confused with Balanitis circumscripta chronica (Chronic Dermatitis of multifactorial aetiology) Erythroplasia of Queyrat Atrophic Lichen Planus and Morphoea and strict histological criteria must therefore be invoked before making a positive diagnosis

Electron microscopy has shown irregularity of collagen fibre diameter similar to that seen in other connective tissue disorders and also irregularity of the epidermal basal lamina (Daróczy 1974) Histochemical techniques have shed no light on the nature of the connective tissue changes (Wallace 1971)

A wide range of symptoms has been reported in the literature including local pains pruritus dysuria urethral discharge urinary obstructive symptoms, decreased sensation and painful erections some patients may be asymptomatic Certain authors stress particular symptoms as being more common in PXO viz non retractile prepuce and urinary flow obstruction (Bainbridge 1971) or urethral discharge

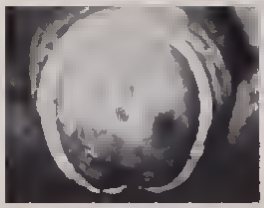

Fig 3 [illegible] erythema [illegible]

Fig 4 [illegible] the glans

(Catterall and Oates 1962) In our series we found non retraction and phimosis and infection and discharge to have been the most common problems (Table 2)

Treatment

The wide variety of therapeutic manoeuvres attempted in BXO/PXO have

included topical and intramuscular testosterone topical oestrogen topical hydrocortisone and fluorinated steroids vitamin E, irradiation and local surgical excision with urethral dilation Catterall and Oates (1962) treated 21 cases with intralesional cortisone acetate and noted significant improvement in 19 although five patients subsequently relapsed

Poynter and Levy (1967) used topical or intralesional fluocinolone acetonide with plastic occlusion and obtained good results They noted however that some patients were disturbed by side effects which included loss of libido and marked atrophy at the site of intralesional therapy a complication emphasised as not being conducive to patient compliance

Rheinschild and Olsen (1970) treated lesions by wedge excision and meatoplasty and encountered no recurrences one year after treatment In our view PXO is best dealt with by circumcision but BXO will often respond to local treatment with a medium potency topical steroid such as 0 1% Hydrocortisone butyrate which avoids the troublesome atrophy associated with intralesional or more potent topical steroids

Involvement of the urethral meatus with resultant stenosis may indicate a need for meatoplasty but apart from this procedure surgery has little place in the management of BXO

Conclusion

Our findings confirm previous reports that PXO is an entity frequently overlooked by clinicians and pathologists in the past and which seems to be a relatively common cause of phimosis Prepuces removed by circumcision should be sent for histological examination since in a quarter of affected patients the disease will not be clinically apparent even when specifically sought A histological record might also prove useful in the event of later onset BXO and also where delayed healing or persistent infection follow circumcision

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Genioplasty: The Horizontal Osteotomy

J. V. Holland

Introduction

Genioplasty was described in the English literature by Trauner and Obwegeser (1957) and as the horizontal osteotomy by Converse and Wood Smith (1964). It is a purely cosmetic operation to alter the size of the chin both where it is a too large (macrogenia) or too small (microgenia). It may be used alone where the dental occlusion is satisfactory, either naturally or through previous orthodontic treatment, or in conjunction with other osteotomies on the mandible where correcting the occlusion does not alter the size of the chin sufficiently to produce a good aesthetic result. It is a versatile procedure enabling the chin point to be moved not only anteriorly and posteriorly but also laterally to relieve asymmetry of the jaw. By removing bone in the vertical plane or by adding it by bone graft the chin may be raised or lowered, thereby shortening or lengthening the face.

Fig 1 *Pre-operative profile*

Case Report

A 20 year old woman was referred with a view to improving the appearance of her retrusive jaw. She had always been aware of this deficiency and was extremely self conscious about it (fig 1). In the past she had undergone orthodontic treatment to align her teeth into a satisfactory Angle's class I occlusion.

Cephalometric analysis of her lateral skull radiograph indicated that the deficiency was in the mandible and in particular the chin. Planning produced an acceptable aesthetic result with a forward sliding genioplasty with a movement of the pogonion of 10mm (fig 2).

The operation was carried out under general anaesthesia through an intraoral incision which followed the gingival margin around the necks of the teeth from one lower first molar to the other.

The result of the operation gave her a more pleasing profile and she was well pleased with her new chin (fig 3). The

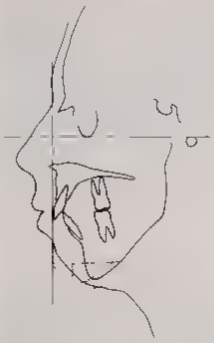

Fig 2 *Planning tracing showing Gonzalez Ulloa's lines*

Fig 3 *Post-operative p[illegible]*

incision healed rapidly and cleanly leaving no scarring in the buccal tissues except in the molar region where there had been a small extension into the mucosa on each side Sensation in her lower lip returned to normal quite rapidly after the operation

Discussion

The geometrical proportions of the European face were first set down by Leonardo da Vinci in the 15th century In more recent times cosmetic operations on the facial bones have necessitated accurate methods of determining both the procedure required and of demonstrating the final result

A simple method of determining chin position is advocated by Gonzalez Ulloa and Stevens (1968) who studied the proportions of classical sculpture and considered faces to be beautiful where the chin is tangential to a vertical line drawn through the nasion perpendicular to the Frankfort plane In spite of the difficulty in practice of determining accurately the position of the Frankfort plane in lateral skull radiographs this method does give an indication of the problem and whether it can be overcome by genioplasty alone

Preoperative planning is not only important for a successful result but it can also give the patient some idea of the finished result The method of profile planning devised by Henderson (1974) uses a transparent positive photograph on which trial operations can be performed by cutting and reassembling the pieces in improved positions The photograph is enlarged to match a lateral skull radiograph with a soft tissue outline From this the type and extent of the osteotomy required and its probable result can be determined and then demonstrated to the patient Individual operators however will have their own preference for planning osteotomies but no particular method is perfect and in the end the experience and aesthetic judgement of

the surgeon is often the most reliable guide

The chin is approached through an intraoral incision running across the mid line from one first molar to the other The incision commonly used (Converse 1950) lies on the buccal aspect of the vestibular mucosa Mucoperiosteal dissection down to the lower border exposes the bone and allows the chin to be degloved When closed this incision heals rapidly but does leave scarring in the buccal vestibule whereas the incision used in this case while also producing a rapid and excellent exposure of the chin has the added advantage of leaving no scarring in the buccal sulcus (fig 5)

When the chin is exposed care must be taken to identify and protect the mental nerves as they issue from the bone into the tissues of the lip Having made the cuts and separated the required segment of bone it is placed in the planned position and held by transosseous wires (fig 4) Any spaces can be filled by autogenous bone graft where required and the mucoperiosteal flap sutured back in position The blood supply to the mobilised segment is maintained through the lingual periosteum and the genial muscles still attached

The degree of resorption is in most cases minimal and if any is to occur it does so in the first 12 months after operation any subsequent loss being negligible (Fitzpatrick 1975)

The genioplasty is an important and worthwhile procedure used in the treatment of facial deformity It is a relatively simple operation being both simple and effective in producing a good long lasting aesthetic result

Acknowledgements

I should like to thank Mr F G Haselden Consultant Oral Surgeon at Odstock Hospital Salisbury for allowing me to present this case and the photographic department at Odstock for the photographs

Fig 4 *Rip[illegible] d [illegible] n fl [illegible] l [illegible] ral sosseous [illegible] and intact m[illegible] d[illegible]*

Fig 5 *P[illegible] operative appe[illegible] ol—e sh[illegible] ug ab[illegible]nce of scarring*

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The Influence of Glucose and Crude Fibre (Wheat Bran) on the Rate of Intestinal ^{47}Ca Absorption

The Influence of Glucose and Wheat Bran on Calcium Absorption

M. A. Macleod and N. J. Blacklock

ABSTRACT

With evidence of induction of increased urinary excretion of calcium by the ingestion of glucose and sucrose there is the theoretical possibility in these circumstances of at least a transient negative calcium balance. In this study the ingestion of glucose or glucose equivalent was found to stimulate ^{47}Ca absorption from the intestine both in normal subjects and in idiopathic calcium stone formers. This induced increase in the rate of ^{47}Ca absorption by glucose can be negated by the addition of crude fibre in the form of wheat bran

Introduction

A recent study has shown that increments of sugar and glucose in a fibre poor dietary increases the overall rate of urinary calcium excretion and also increases the magnitude and frequency of peaks of calcium concentration in individual urine specimens throughout the day (Thom *et al* 1978) Other studies have shown that a sugar bolus taken in the fasting state induces transient but significant increase in urinary calcium excretion (Hodgkinson and Heaton 1965 Lindeman et al 1967 Lemann Piering and Lennon 1969 Barilla Townsend and Pak 1978) The effect on renal excretion is probably induced by the metabolic response to the assimilation of this nutrient

With the profound calciuria in both the acute and longer term studies (Thom *et al* 1978) there appeared to be the possibility of induction of a negative calcium balance unless there was concomitant increase in the rate of intestinal calcium absorption

Although calcium is absorbed in the small intestine the principal site is the duodenum and proximal jejunum The rate of absorption is influenced by a number of factors which include age calcium balance and the amount and availability of calcium in the gut The active metabolite of 25 hydroxycholecalciferol 1 25 dihydroxy cholecalciferol is a specific stimulus for calcium absorption (Deluca, 1976) Food constituents such as phytic or oxalic acids and phosphates can reduce the dietary fraction absorbed by forming insoluble calcium salts in the lumen of the intestine Nutrients such as lactose and sucrose have been found to increase calcium absorption from the intestine in animals (Vaughan and Filer 1960 Pansu *et al* 1976)

This preliminary report describes observations in man on the influence of some common food constituents on the rate of intestinal calcium absorption The effects of glucose glucose equivalent and crude fibre in the form of wheat bran have been observed in the present study both in normal subjects and idiopathic calcium oxalate stone formers

Materials and Methods

Intestinal calcium absorption was measured using ^{47}Ca and a standard arm counting technique (Macleod 1971)

In the first study 5 normal subjects and 10 stone formers took part During the first stage ^{47}Ca uptake was measured with the subjects on a diet of their own choice

although instructions were given to avoid excessive consumption of sugar and sugar products After a delay of two weeks to ensure complete decay of the isotope the test was repeated with the ^{47}Ca and calcium chloride carrier suspended in 100 mls of HYCAL (Beechams Ltd) containing carbohydrate solids equivalent to 69 grams of anhydrous glucose

In the second study 10 normal subjects and 45 idiopathic calcium stone formers took part The ^{47}Ca uptake was measured in the first stage on a diet of own choice except for the avoidance of excess sugar and sugar products The test was repeated 14 days or more later and in this second stage each subject had consumed 171 mls HYCAL (Beechams Ltd) containing carbohydrate solids equivalent to 113 59 grams anhydrous glucose at breakfast time and with the evening meal for four days before and continued this during the three days of the test No additional soluble carbohydrate was used to suspend the isotope at the time this was ingested for the test

In the third study 7 normal subjects and 2 idiopathic calcium stone formers whose ^{47}Ca uptake under control conditions was already known repeated the ^{47}Ca absorption test in the circumstances of the first study as described above the isotope and calcium carrier being suspended in 100 mls of HYCAL (Beechams Ltd 69 grams anhydrous glucose equivalent) Two weeks or more thereafter the ^{47}Ca uptake test was repeated and on this occasion the ^{47}Ca and calcium carrier were mixed with 100 mls of HYCAL as before and 15 grams of coarse wheat bran

Results

In the first stage of the first study the mean ^{47}Ca absorption of the five normal subjects was 32% ± 5 SD (normal 30% ± 5 SD Macleod 1971) The mean absorption of the 10 idiopathic calcium stone formers was 51% ± 10 SD showing the spontaneously increased calcium absorption already observed in 80% with this disease (Blacklock and Macleod 1974) In the second stage when the ^{47}Ca and calcium carrier were given suspended in 100 mls of HYCAL the ^{47}Ca absorption of the 5 normal subjects increased to 61% ± 14SD ($p < 001$) and to 59% ± 14 SD in the stone formers ($p < 02$) (Table 1)

TABLE

[illegible]

In the second study the mean ^{47}Ca absorption of the 10 normal subjects was 38% ± 6 SD and that of the 45 idiopathic calcium stone formers was 49% ± 10 SD in the first stage In the second stage during which there was a generalised dietary increment with glucose as HYCAL the ^{47}Ca absorption increased to 65% ± 17 SD in the normal subjects and to 62% ± 13 SD in the stone formers In both instances the difference is significant ($p < 001$) (Table 2)

TABLE

[illegible]

In the third study the ^{47}Ca uptake of the 7 normal subjects under control conditions was 36% ± 5 2 SD and that of the 2 stone formers was 45% ± 3 5 SD from previous observation In the first stage of this study when the ^{47}Ca and calcium carrier were given with 100 mls HYCAL the ^{47}Ca uptake increased to 63% ± 17 SD and in the case of the 2 calcium oxalate stone formers to 58% ± 10 SD In the second stage of the study when the ^{47}Ca together with the calcium carrier was given suspended in 100 mls of HYCAL along with 15 grams of wheat bran the ^{47}Ca uptake was reduced to 40% ± 5 SD in the 7 normal subjects and to 41% ± 3 SD in the 2 stone formers In both instances the difference is significant ($p < .001$) (Table 3)

TABLE

Difference of ^{47}Ca absorption on glucose and bran between normal and 2 calcium oxalate stone formers [illegible]

Subjects	Mean ^{47}Ca uptake ± SD	Significance
7 Normal subjects	[illegible]	
	100 ml HYCAL	p [illegible] 005
	100 ml HYCAL + glucose	[illegible]
Stone formers (2 cases)	[illegible]	
	100 ml HYCAL	p [illegible] 005
	100 ml HYCAL + 15 g bran	p [illegible] 001

Discussion

The results of the first two studies show that both in acute circumstances as a bolus and when added as regular supplements to the usual diet glucose causes significant increase in the rate of intestinal calcium absorption both in normal subjects and in calcium oxalate stone formers Since this glucose-enhanced absorption of calcium appears to occur at the same time as the glucose induced calciuria was observed to occur in other studies in which glucose was given both as a bolus (Hodgkinson and Heaton 1965 Lindeman et al 1967) and also as supplements to normal diet (Thom et al 1978) there seems no likelihood of a negative calcium balance from carbohydrate induced calciuria assuming a normal dietary with its usual excess of available calcium The concurrence of the enhancement of absorption of calcium and its secretion is suggestive of a common mechanism

Study of idiopathic calcium oxalate stone formers has shown that more than 80 per cent have a spontaneously high rate of calcium absorption although on the basis of analysis of 24 hour urine collections a lesser proportion (40% 70%) exhibit hypercalciuria (Blacklock and Macleod 1974) In the present study the spontaneously higher basal rate of intestinal calcium absorption of the stone formers was again apparent but there was still a response to the glucose stimulus both as a bolus and as increments to normal diet although with the higher basal absorption the range of response was smaller In studies on glucose induced calciuria an exaggerated response was noted in idiopathic stone formers (Lemann Pierring and Lennon 1969) but this appeared to be confined to those considered to have renal hypercalciuria (Barilla Townsend and Pak 1978) Comparison of the spontaneously high rates of calcium absorption and urinary excretion found in idiopathic calcium stone formers with the induction by glucose of augmented absorption and excretion in normal subjects and the exaggeration of these in the stone formers suggests there may be a common metabolic stimulus which is more readily provoked in the case of the stone formers and that this is a fundamental metabolic fault in their case

Phytic acid which is present in the whole grain of cereals can reduce the availability of ingested calcium for absorption by precipitating calcium as insoluble calcium phytate It can also bind calcium as a

complex This has been considered in the past as contributing to calcium deficiency However overt calcium deficiency is relatively uncommon in primitive peoples whose dietary contains much crude fibre and presumably large amounts of phytic acid In the present study the unprocessed bran nullified the increased rate of ^{47}Ca absorption induced by glucose It has also been observed significantly to reduce basal ^{47}Ca absorption levels (personal observations) In this study using a bolus of glucose and wheat bran the phytic acid in the bran may have formed insoluble calcium salts or complexes with the ^{47}Ca and the calcium chloride carrier diminishing the availability of calcium for absorption alternatively the bran dispersed through the glucose and calcium solution may have physically trapped the glucose in solution and diminished the intimacy of its contact with the intestinal mucosa reducing glucose absorption itself and any mucosal effect of glucose on calcium absorption as has been suggested by Pansu *et al* (1976) Further studies which are under way may clarify the actual mechanism involved Haber *et al* (1977) have also observed that the ingestion of nutrient and fibre in natural combination (apple) is followed by a much smaller metabolic response (insulin) than when the same amount of soluble nutrient (apple juice) is ingested on its own

Whatever the mechanism there is the evidence that crude dietary fibre can lower basal rates of intestinal absorption of calcium and can negate increased absorption rates induced by glucose or glucose equivalents

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The Determination of Antithrombin III and its Clinical Application

S P Gray and J A Billings

ABSTRACT

A preliminary study of antithrombin III levels in the blood of three groups of patients viz in taking the contraceptive pill patients on warfarin and group and a group with a variety of non specific complaints has been carried out using a newly developed automated method No age or sex difference was found but women on the contraceptive pill have a significantly lowered antithrombin III activity in the blood and warfarin treated patients have a significantly increased activity It is suggested that antithrombin III acts as an inhibitor in the complement coagulation fibrinolytic and kallikrein kinin systems and lowered activity predisposes to venous thrombosis its measurement should be carried out in all those patients at risk in the post-operative phase

Introduction

Antithrombin III is the term given to the activity which causes progressive irreversible destruction of thrombin in plasma (Lane and Biggs 1977) There are two other fractions with antithrombin activity in the blood alpha$_1$ — antitrypsin and alpha$_2$ — macroglobulin but as antithrombin III comprises over 50 per cent of the total activity it is by far the most important It has been isolated purified and is known to inhibit the activated clotting factors XIIa XIa VIIIa Xa and thrombin as well as plasmin trypsin and kallikrein Furthermore its action on factor Xa is greatly accelerated by heparin (Kakkar *et al* 1971) and this mechanism is thought to be the explanation of the efficacy of low dose heparin in the prevention of venous thrombosis The inhibition of activated clotting factors many of which are proteolytic enzymes during vascular coagulation is an important function of antithrombin III and any decrease in its activity or concentration has been found to predispose to venous thrombosis in the post-operative phase especially in those patients who have a congenital deficiency of the protein (Egeberg 1965) Another aspect was reported by Sagar and co workers (1976) who showed that patients who developed venous thrombosis after major surgery had a low antithrombin III in the post operative phase

Congenital deficiency of antithrombin III is inherited as an autosomal dominant and it has been shown that in the disease there is present a non functional protein which reacts immunologically although the altered blood clotting indicates that antithrombin is deficient (Lane and Biggs 1977) Thus immunological methods can give rise to erroneous findings

Antithrombin III activity in the blood is found to be low in disseminated intravascular coagulation and in liver disease (Lane and Biggs 1977) As the protein is made in the liver any failure of protein synthesis will affect its production also

Taking the contraceptive pill has been reported by some workers to be associated with low antithrombin levels but other workers have found normal levels (Lane and Biggs 1977) The discrepancy could be due to the use of immunological methods which also detect functionally inactive as well as active antithrombin III

Newer methods which measure thrombin as a proteolytic enzyme are becoming available (Ødegard and Abildgaard 1975)

but they suffer from the disadvantage of being complicated to carry out and this precludes their use in large scale surveys If these methods could be automated then the measurement of antithrombin III could be used in the screening of patients at risk from post operative thrombosis with a view to predicting it and also to monitor the effects of anticoagulant therapy

In this preliminary study we have attempted to develop such a method which can be used for larger surveys and we have looked at three groups of subjects women taking the contraceptive pill patients undergoing warfarin therapy and finally a group of patients attending the outpatient department for a variety of non vascular complaints

Methods

All the reagents used were supplied by KabiVitrum (London) in a kit designed for the manual determination of antithrombin III by utilising its action on a synthetic peptide S 2238 The procedures and amounts of reagents were modified by ourselves to facilitate measurement in the LKB 2086 Kinetic Analyser fitted with the Hewlett Packard 9815 Calculator This instrument was further modified to allow the addition of two separate reagents one minute apart These modifications provided a system with a high throughput and a much greater precision than was possible with the manual analysis

Blood from each subject was collected in citrate as for prothrombin time the plasma separated after centrifuging at 4°C and then stored at 20°C prior to analysis Prothrombin times were assayed using the Quick One Stage Prothrombin Test

Patients

One hundred and five subjects were tested altogether Of 36 women aged approximately 18 years 17 were taking the contraceptive pill and the rest served as controls Eleven patients undergoing warfarin treatment for a variety of vascular disorders were tested for antithrombin III and prothrombin time and another group of 58 patients with a variety of non vascular complaints were included in the survey to establish age and sex differences as well as acting as controls for the other groups

Statistics

Several clinical groups were derived from the 105 subjects and analysed by standard statistical tests e g linear regression t test chi square and the Mann Whitney test All procedures were taken from Colquhoun (1971) The groups were as follows age sex medical and surgical complaints warfarin treatment and use of the contraceptive pill

Results

All antithrombin III values were referred to a pooled normal human plasma which was given the value of 100 per cent A summary of the findings in all the 105 subjects tested is shown in Table 1

There was no significant age or sex differences nor did the difference between the medical and minor surgical groups attain statistical significance

The mean antithrombin level in those patients on warfarin was much higher than in the controls and the difference was highly significant ($p < 0.01$) The range of values expressed as the mean ±2 SD included some which were nearly 60 per cent above the mean of the controls

When the group of young women taking the contraceptive pill was compared with an age matched set of controls, it was evident that the mean antithrombin level was significantly lower ($p < 0.025$) in those taking the pill.

In Table 2 the ranges of values obtained for the prothrombin times and antithrombin III percentages from the warfarin treated patients are shown. When the results from each of the 13 patients were compared there was an inverse relationship between the amount of prothrombin and the increase in antithrombin activity. The association was highly significant ($p < 0.01$).

TABLE 2 [illegible]

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

Values outside the normal range were recorded in one male dental patient and in two gynaecological patients not taking the pill.

Discussion

Antithrombin III not only inhibits activated coagulation factors but also the fibrinolytic, complement and kallikrein kinin systems, all of which are called into action following trauma (Seegers 1978). Olsson (1963) established that lowered levels of antithrombin were to be found in the week subsequent to a major operation and other workers have defined a hypercoagulable state in which the antithrombin activity was below 85 per cent (Scully and Kakkar 1977). If we use these authors criteria rather than our own wide ranges then about 7 per cent of our subjects were in this hypercoagulable state and consequently might have clotting problems if they had to undergo major surgery. It appears that if a patient has a low pre-operative antithrombin level surgery will lower it still further. The interaction of course may not be additive but could be multiplicative like the risk factors in ischaemic heart disease. According to Ødegaard and Abilgaard (1978) a subnormal antithrombin activity nearly always has clinical significance and one of our male patients had a value well into the spontaneous thrombosis range as defined by Scully and Kakkar (1977) and this emphasises the importance of predicting clotting behaviour before a potential major operation.

Immunological methods for antithrombin may give normal values in women taking the contraceptive pill whereas the enzymatic method used in this study only measures the active protein which was significantly diminished. This result implies that non functional antithrombin is circulating in the blood of these women and gives some indication of how the pill can affect protein synthesis. Our findings confirm those of other workers who also suggest that there is an increased risk of thrombo-embolism in pregnant women as well as those taking the pill (von Kaulla and von Kaulla 1971, Poller 1978). Pregnancy and oestrogen therapy are thus additional risk factors in those who have a naturally low antithrombin activity. The group of young women in our series could not have been taking the pill for long but when they were compared with an older group of women who had been taking the pill much longer we could not find a significant difference between them. Of course our series was a small one and it may be profitable to look for any long term effect of oestrogen therapy and also to study the progestogen pill alone and in

combination with oestrogen The mechanism of action of the pill is presumably to affect synthesis of antithrombin III at the level of protein transcription It would seem to be potentially useful to screen those women on the pill who are to undertake major surgery and then to follow their post-operative progress The risk of deep venous thrombosis after major surgery has been claimed to be high in those subjects with an antithrombin level of less than 80 per cent (Barrowcliffe Johnson and Thomas 1978) although any predictive value is lessened because of the overlap of the normal range with pathological values Another effect of antithrombin is the inhibition of the kallikrein kinin system so any deficiency of antithrombin will allow kinins to accumulate and consequently to increase symptoms of shock after operation of trauma It is evident that there are a variety of phenomena such as shock haemorrhage and fibrinolysis which require a normal amount of antithrombin to control and regulate them The value of measuring it in the post operative phase is clear

Warfarin therapy has been in use for a number of years and the drug is well established as an anticoagulant Its action is thought to be mediated by competing with vitamin K which is responsible for the synthesis of prothrombin When vitamin K is deficient an abnormal prothrombin is produced which lacks gamma glutamyl residues essential for its activation by calcium ions Thus the amount of effective prothrombin is reduced and the blood clotting is prolonged (Davie and Fukikawa 1975) In our series of cases we found the prolongation of the prothrombin time was associated with a marked increase in the amount of antithrombin activity which in some cases was more than 50 per cent above normal As the two phenomena were inversely related it was possible that the seesaw mechanism if it was operating with shorter than normal prothrombin times i e greater amounts of actual prothrombin could provide an additional index of thrombotic tendency by measuring both prothrombin time and antithrombin at the same time The increase in antithrombin on warfarin therapy might account for the non linear response of the clotting system to the drug Why does warfarin increase antithrombin activity? It is known that the drug competes with vitamin K and leads to a diminished production of factors VII IX and X as well as prothrombin but antithrombin is not dependent on vitamin K and of course we are trying to explain an increased synthesis of the protein One possibility is the diminution of prothrombin produces less thrombin which in turn allows antithrombin to accumulate because it is not being consumed Against this is the observation that regulation of highly active proteins is under the catabolic action of proteases which soon restore the normal conditions A further possibility is that warfarin acts at the microsomal level to interfere with protein transcription This usually gives rise to an induction of the protein and the increased synthesis would then cause an increase in the equilibrium concentration of the protein This effect would remain whilst the drug was being taken and would probably be dose dependent

It is evident that antithrombin III plays an important role in the coagulation fibrinolytic, complement and kallikrein kinin systems and a knowledge of the kinetics and concentrations of these substances and their regulation by inhibitors like antithrombin should be an aid to the prediction and management of thrombosis

There are three groups of patients who may benefit from measurement of circulating levels of antithrombin III viz those with a congenital deficiency of the factor and who have a history of

predisposition to clotting women who have been on the contraceptive pill for some time and are about to undergo surgery and finally all those who are being subjected to major surgical procedures In all cases the pre surgical levels should be established and monitoring continued during the first post operative week when the risks are greatest Patients in the hypercoagulable state and especially those in the spontaneously coagulable group may require preventative therapy to lessen the risk of potential venous thrombosis

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HMS RECLAIM

Few could have foreseen when HMS *Reclaim* was built in 1948 that she would live to see a veritable revolution in diving. Purpose built as a diving ship she was based on the King Salvor class of mooring and salvage vessels. Her two triple expansion reciprocating steam engines known to the less knowledgeable as 'up and downers' have become unique in the Royal Navy and were able to take Reclaim to her rightful place in the Jubilee Fleet Review a splendid contrast to the steam turbine gas turbine and nuclear propulsion systems that surrounded her on that occasion.

If one remembers that in *Reclaim's* youth navy diving was based on the shallow water diver using oxygen and 'hard hat' divers using both standard and deep diving gear one may appreciate that great changes have occurred in the ship's lifetime. However, *Reclaim* has been involved in virtually all the steps taken by naval diving in her 31 years service. It is well that just a few should be detailed. In her first year of service an intrepid and improbably named Petty Officer Bollard broke the world's depth record by descending to 535 feet breathing oxy helium. In 1951 divers from *Reclaim* managed to inspect the sunken submarine HMS *Affray* lying in 287 feet of water and on this occasion a 'world first' occurred in the use of underwater TV. As a result of this exercise the Submersible Decompression Chamber (or bell) was adapted to allow divers using lightweight breathing apparatus to work with much more mobility than was previously possible for the 'hard hat' diver.

Reclaim also had the first 'transfer under pressure' system in the world. This was fitted in 1958 and allowed the bell to be mated to deck chambers under pressure and greatly facilitated the ease and comfort with which divers could be decompressed. It is now a standard procedure in all deep diving.

Many successful trials have taken place from *Reclaim* and another world record came her way in 1956 when Lieutenant George Wookey dived to 600 feet which is a considerable depth even to this day.

In addition to trials *Reclaim* has had a most successful career in salvage and, apart from raising a variety of aircraft and helicopters, it was perhaps fitting that her last operational role was to recover the sad remnants of one of the world's most advanced aircraft.

Naval medical officers have been closely involved with *Reclaim* all her life and it was singularly appropriate that at the recent dinner of the Royal Navy Medical Club the first medical officer of *Reclaim*, Surgeon Lieutenant D. W. H. Barnes RNVR Retd, was able to meet the ship's current Commanding Officer, Lieutenant Commander J. S. Coggins MBE RN.

And so *Reclaim* is shortly to be paid off and disposed of. Her exploits were shared by a whole host of brave men. Many of these men were and are gloriously rich characters who perhaps would not feel so at home in the new ships which herald the technical age of diving. However, they can be reassured that in *Seaforth Clansman* and the Seabed Operations Vessel which is at last under construction HMS *Reclaim* has worthy successors. Is it too much to hope that the new ship may be called *Reclaim*?

RRP

Admiral Sir Eliab Harvey of the Temeraire: A Distinguished Kinsman of William Harvey

A Sakula

Introduction

The visitor to the church in the charming village of Hempstead near Saffron Walden in Essex may see the vault and chapel to which lie the remains of the discoverer of the circulation of the blood the great Doctor William Harvey (1578-1657) as well as those of his younger brother Eliab Harvey (1589-1661) who had this Harvey family mausoleum built in 1655 William Harvey left no progeny but he had six brothers and two sisters and from his brother Eliab there have descended many generations of the Harvey family who also lie buried at Hempstead (fig 1) One of these the last male descendant of the Harvey family was the great sailor Admiral Sir Eliab Harvey whose ship the *Temeraire* played such a brilliant part in the victory at Trafalgar in 1805

Early Years

Admiral Sir Eliab Harvey (fig 2) was born on December 5 1758 the great great great grandson of Eliab the brother of Doctor William Harvey (fig 3) His father was another William Harvey (1714 1763) of Rolls Park near Chigwell Essex a wealthy landowner and merchant and Member of Parliament for Essex His mother was Emma Harvey nee Skynner (1732-1767) The future Admiral was the third son and he had four brothers and four sisters After his father s death in 1763 Eliab (aged five) was placed under the guardianship of his uncle General Edward Harvey (1718-1778) Adjutant General of the Army

In 1771 Eliab (then aged thirteen) entered the Royal Navy as midshipman on the yacht *William and Mary* Later he served on the frigate *Orpheus* and he was then transferred to the *Lynx* in the West Indies 1776 was the year of the revolt of the American colonies and Eliab served in American waters on the *Mermaid* the *Eagle* and the *Liverpool* and there was an occasion when he was cast away on Long Island

In 1779 his elder brother yet another William Harvey (1754 1779) died and Eliab succeeded to Rolls Park He was now of age a man of property and for a time he played the man about town He must have been of a gambling disposition (a reckless plunger) as the following anecdote in a letter from Sir Horace Walpole to Sir Horace Mann shows

> *Feb. 9 1780 By the tenor of the petition you would think we were starving yet there is a little coin stirring Within this week there has been a cast at hazard at the Cocoa Tree the difference of which amounted to six hundred and four score thousand pounds Mr O Birne an Irish gamester had won one hundred thousand pounds of a young Mr Harvey of Chigwell just started for a midshipman who on estate by his elder brother s death O Birne said You can never pay me I can said the youth my estate will sell for the debt No said O I will win ten thousand — you shall throw for the odd ninety They did and Harvey won*

In this fashion Eliab almost lost Rolls Park for the Harvey family by the throw of a dice

In 1779 he had been promoted Lieutenant on the *Resolution* but he did

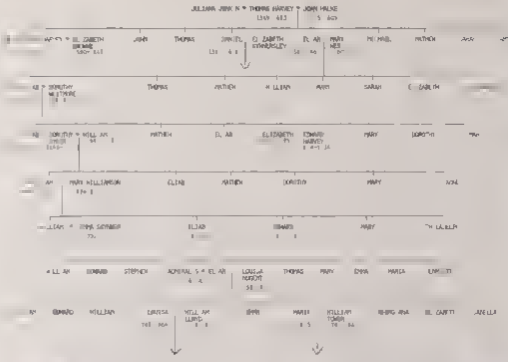

Fig 1 *Genealogical table of female of Dr Noor William Harvey*

Fig 2 *Attributed to Lemuel H*
1803)

Fig 3

not join this ship However he was back at sea in 1781 on the *Dolphin* and in 1782 on the *Fury* and by 1783 he had advanced to the rank of Captain on the *Otter*

Marriage

On May 15 1784 Eliab married Louisa Nugent (1758-1841) Her father was Robert first Earl Nugent of St. Martins in the Fields and her mother was Elizabeth widow of Augustus fourth Earl of Berkeley Louisa was the youngest daughter her elder sister Mary Elizabeth was the mother of the Duke of Buckingham The wedding took place at St George s Hanover Square They had a large family three sons (William, Edward and a second William) and six daughters (Louisa Emma Maria Georgina Elizabeth and Isabella)

Later Naval Career

In 1790 Captain Eliab Harvey was in command of the *Hussar* for a few weeks at the time of the Spanish armament and in 1793 at the outbreak of the French Revolutionary War he served in the frigate *Santa Margarita* at the reduction of Martinique and Guadeloupe By 1794 the *Santa Margarita* was attached to the Channel fleet and she was one of the squadron which drove the French frigate *La Felicite* and two corvettes on to the shore on the coast of Brittany. Captain Eliab Harvey was in the West Indies again in 1796 but ill health in 1797 led to his being invalided home from San Domingo 1798 saw the formation of the Sea Fencibles and he was appointed in command of the Essex district He then served on the *Triumph* in the Channel

The Temeraire

It was the custom in the British Navy to retain the name of captured enemy ships The original French ship the *Temeraire* (the name in French means daring or reckless) was a third rate 1685 tons 74 guns and was captured by Captain Boscowen from the French Captain De la Clue at Lagos in 1759 and added to the Royal Navy in 1760 After seeing action at Belle Isle in 1761 and Martinique in 1762 she was sold in 1784

The second *Temeraire* a second rate 2121 tons 98 guns was built at Chatham and it was said that the oak used was from trees across the Thames in Hainault Forest Essex She was launched on September 11 1798 and was commissioned in March 1799 her first captain being Peter Puget In 1801 she was with the Channel Fleet, commanded by Thomas Eyres and while off Bantry Bay she was ordered to sail to the West Indies to watch French naval activities there The sailors mutinied but the mutiny was cruelly suppressed and after a court martial at Portsmouth in 1802 the ringleaders were executed

Captain Eliab Harvey was then put in command of the *Téméraire* and he commissioned her at Plymouth in November 1803 manning her chiefly with Liverpool men In March 1804 she sailed to join the Fleet off Brest and for the next eighteen months she served in the Bay of Biscay and the blockade of Brest The stigma of the earlier mutiny was wiped out and the sailors referred affectionately to the ship as the *Saucy Téméraire* In the autumn of 1805 the *Téméraire* formed part of the Fleet off Cadiz and Captain Eliab Harvey had the opportunity of meeting Lord Nelson as the following letter shows

To E Harvey Captain of H M S Temeraire
Victory Oct 3rd

My dear Sir
Will you do me the favour of dining here to day and I beg that you will come before noon that I may have an opportunity of cultivating your acquaintance
Being with much esteem
Dear Sir
Nelson & Bronte

Trafalgar

The *Téméraire s* great day came on

October 21 1805 The thirty one British ships were arranged in two squadrons one led by Lord Nelson in the *Victory* and the other by Admiral Cuthbert Collingwood in the *Royal Sovereign* The thirty three enemy ships formed one line the French under Admiral Villeneuve in the *Bucentaur* and the Spanish under Admiral Gravina in the *Principe de Asturias* (fig 4) The *Temeraire*

Fig 4 *Plan of Battle of Trafalgar 1805 Noon*

was the second ship in Nelson s line so close to her that she almost touched the *Victory s* stern As the two ships sailed towards the enemy the *Temeraire* at one stage appeared to be going ahead of the *Victory* Sir Henry Newbolt (1862 1938) referred to this incident in his Quarter-Gunner's Yarn

The Victory led to her flag it was due
Tho the Temeraires thought themselves Admirals too
But Lord Nelson he hailed them with masterful grace,
Cap n Harvey I'll thank you to keep in your place!

At 11 35 am Nelson hoisted his famous signal on the *Victory* England expects that every man will do his duty At noon the *Royal Sovereign* started firing and at 25 minutes after noon the *Victory* opened fire on the French *Redoubtable* (commanded by Captain Lucas) and the *Téméraire* followed suit against the Spanish *Santissima Trinidada* the greatest ship at that time Soon the *Temeraire* had the top of her mizzen mast shot away by the *Redoubtable* It was while the *Victory* and the *Redoubtable* were engaged that at 1 20 pm a musket shot from the top of the *Redoubtable s* mizzen mast hit Lord Nelson and he died later at 4 30 pm

Meanwhile the *Téméraire* was in bad straits and the *Victory* was in danger of being boarded by a party of men from the *Redoubtable* At this point the *Temeraire* fired her entire broadside into *Redoubtable* and lashed herself to that vessel The *Victory* was saved The French *Fougueux* (meaning in French spirited or impetuous) then bore down on the *Temeraire* on her starboard side but when the *Fougueux* was within a yard arm s distance the *Téméraire* fired her starboard broadside into her The *Fougueux* blundered blindly into her she was lashed to the *Téméraire* was boarded and taken after a sharp struggle Throughout all this action the French *Neptune* pounded the *Téméraire* continuously The *Victory* had now managed to break loose from the *Redoubtable* whose main mast crashed over the *Téméraire s* poop thus forming a bridge across which a party from the *Temeraire* passed and took the ship While the two ships were thus engaged three beautiful little cannonades' fell from the *Redoubtable* on to the *Temeraire* with which our Admiral means to commemorate the event every year in May by firing them off from the mound at Chigwell (Letter from Louisa Harvey to General Grosvenor Nov 5 1805)

As the smoke of battle cleared the severely damaged *Téméraire* was seen with her two prizes the *Redoubtable* and the

[illegible] *Trafalgar* 1805
[illegible]

Fougueux tied to her on either side (fig 5) The frigate *Sirius* took the *Temeraire* in tow Shortly after 3 pm the *Téméraire* had to man her guns again when four French ships fired on her but on the *Temeraire s* reply they hauled off The *Téméraire* ceased firing at 4 30 pm The battle was over It was several days before Captain Eliab Harvey actually learned of Nelson s death and he was heart broken The scene at the end of the battle was described by J Duff in his poem The Brave Old *Téméraire*

When sailors speak of Trafalgar
So famed for Nelson s fight
With pride they tell of her career
Her ports and course her might
How when the victory was won
She shone triumphant there
With noble prize on either side
The brave old Téméraire

On the day following the battle a severe storm blew The two prizes the *Redoubtable* and the *Fougueux* were lost The *Sirius* was ordered to leave the *Temeraire* which had to ride out the storm unaided (shocking weather for our poor wounded wrote Captain Harvey) but eventually she reached Gibraltar being towed in by *Defiance* The *Téméraire s* two surgeons Thomas Caird and William Scott must have been greatly occupied on that day The *Temeraire s* casualties were 47 killed and 76 wounded and another 43 of her crew perished in the prizes after the battle Of her 31 officers three were killed and three wounded

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*This painting is referred to by Neal J P (1826) Views of the Seats of Noblemen and Gentlemen in England Wales Scotland and Ireland (Pub Series) Vol 3 London Sherwood Gilbert & Piper in which it is attributed to John Thomas Serres (1759-1825) However it is more in the style of Nicholas Pocock (1741 1821) whose painting of the Temeraire in 1807 is recorded by Algernon Graves (1906) in Royal Academy of Arts London Graves & Bell p 170

After Trafalgar

The defeat of the combined French and Spanish fleets at Trafalgar meant that Britain had complete supremacy at sea and this made it impossible for Napoleon to attempt a cross channel invasion of Britain But the price which the Royal Navy paid in dead and wounded was immense Four hundred and fifty sailors died at Trafalgar and the greatest of them all Nelson also met his end Admiral Collingwood was now in command and he addressed the following letter of congratulation to Captain Eliab Harvey

Ennyalns Oct 28th 1805
To E Harvey Captain of H M S Temeraire

My dear Sir

I congratulate you most sincerely on the victory his Majesty's fleet has obtained over the Enemy and on the noble and distinguished part the Temeraire took in the Battle Nothing could be finer I have not words in which I can sufficiently express my admiration of it — and I hope to hear you are without wound pray send me your report of killed and wounded with the officers names who fell in the action and the state of your ship whether you can get her in a state to meet Gravine should he again attempt anything

I am dear Sir with great esteem
Your faithful humble servant
Cuthbert Collingwood

The other captains in the battle may have felt that Captain Eliab Harvey had received too special a mention in Collingwood's despatch and this caused some bad feeling Thus Captain Codrington of the Orion wrote to his wife

There will always be some who have vanity leads them to praise their conduct in too warm a tint and to sound their own trumpets without regard to concord or harmony but above all I have never heard of is Harvey He is become the greatest bore I ever met with

And Captain Thomas Fremantle wrote similarly

Eliab Harvey goes with the next five ships his head is turned never having been in action before he thinks every ship was subdued by him and he vows in all to Death with his incessant Jargon

Following Trafalgar, Captain Eliab Harvey was promoted Rear Admiral of the Red He received formal thanks of Parliament (he was Member of Parliament for Essex at the time of Trafalgar) was given a gold medal and also a sword of honour from Lloyds' Patriotic Fund His family coat of arms was later altered with the motto *Téméraire* above it a sea horse with a ribbon inscribed Trafalgar was added and a further motto *Redoubtable et Fougueux* below it

On January 9 1806 at Nelson's funeral at St Paul's Rear Admiral Eliab Harvey was one of the supporters of the pall In the spring 1806 he hoisted his flag as Rear Admiral on the *Tonnant* in the Channel under Lord St Vincent When Lord Vincent retired he wrote to Rear Admiral Eliab Harvey

Mortimer Street
April 22nd 1807

Sir

I cannot retire from the command of the Channel fleet without expressing the high sense I entertain of the ability zeal and perseverance displayed by you in the command of a detached squadron during an unexampled long cruise off the north coast of Spain and of assuring you of the esteem and regard with which I have the honour to be etc etc

Court Martial

There then followed a remarkable episode in the naval career of Rear-Admiral Sir Eliab Harvey In 1809 he was aggrieved because Lord Gambier commander in chief of the Channel fleet appointed Lord Cochrane to the task of attempting to destroy the enemy fleet in the Basque Roads Admiral Harvey felt that he had been passed over in favour of a junior officer and expressed his contempt of Lord Gambier publicly on the quarter deck of the flagship *Caledonia* Lord Gambier brought Admiral Harvey to Court Martial which was held on board the *Gladiator* at Portsmouth on May 22 23 1809 Admiral Harvey in his defence said

This is not the first time I have been lightly treated and that my services have not been attended to in the way they deserved because I am no canting methodist no hypocrite no psalm singer and do not cheat old women out of their estates by hypocrisy and cunning I have volunteered to perform the service you came on

[illegible] would have been happy [illegible] the [illegible] tion but as I was sorry to have a junior officer placed over my head

The verdict of the Court was as follows

The Court having duly heard and deliberated upon the evidence which has been adduced in support of the charges exhibited against the Rear-Admiral Eliab Harvey and having heard what he has alleged in his own defence are of the opinion that the charges of contempt and insulting language to the Right Honourable Lord Gambier and of having otherwise shown great disrespect to him as Commander in Chief on board his Majesty's ship the Caledonia of having spoken of his Lordship to several officers in a disrespectful manner have been proved and the Court doth therefore adjudge the said Rear-Admiral Sir Eliab Harvey to be dismissed his Majesty's service and he is dismissed accordingly

It is of interest that this selfsame Lord Cochrane over whom Admiral Sir Eliab Harvey was court martialled was himself later in trouble with Lord Gambier and in a famous trial in 1814 he was found guilty of being involved in a stock exchange fraud for which he was struck off the Navy list and imprisoned.

Final Years

Less than a year after this ignominious episode an Order of Council on March 21 1810 in consideration of his long and meritorious services reinstated the Rear Admiral to his rank and seniority However he was never again employed to go to sea although in 1810 he was promoted to Vice Admiral of the Blue and in 1819 to Senior Admiral of the Blue

In 1815 he had been appointed KCB and in 1825 was elevated to GCB He was elected a Fellow of the Royal Society His town residence was at 6 Clifford Street off Bond Street and he lived the life of a country squire at Rolls Park which he improved considerably including the elaborate plaster decorations in the large dining room which contained the tableau of memorial portraits of Thomas Harvey surrounded by his seven sons This of course included the well known Rolls Park portrait of William Harvey now to be seen in the National Portrait Gallery London

Admiral Harvey had originally been elected Member of Parliament for Maldon in Essex in 1780 and sat in the next two parliaments until 1784 Being descended from an old Tory family he supported Mr Pitt In 1800 he was elected Member of Parliament for the County of Essex and he held this seat until 1812 and then again from 1820 until his death

Death of Admiral Harvey

Admiral Sir Eliab Harvey died at Rolls Park on February 20 1830 One week later on February 27 his remains were deposited in the family mausoleum at Hempstead Church near those of his great kinsman Doctor William Harvey (fig 6) The Admiral's was the last burial in the family vault At the funeral a numerous tenantry by whom he was highly respected

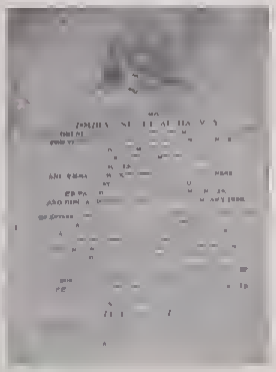

Fig 6 *Memorial to Admiral Sir Eliab Harvey in the Harvey Chapel Hempstead Church Essex*

and beloved for his liberality preceded the procession The carriages of Viscount Maynard the Lord Lieutenant of the County and other neighbouring gentlemen followed the corpse

When the Admiral died his three sons had already predeceased him His first son William Harvey (1786 1794) died in childhood His second son Edward Harvey (1788 1812) served as Captain in the Coldstream Guards and was killed in the Lines of Burgos His third son also a William Harvey (1801 1812) died young The Admiral was however survived by his wife Lady Louisa and his six daughters (Louisa Emma Maria Georgina Elizabeth and Isabella) His daughter Emma was married four days before her father s death

There are descendants of his daughters Louisa and Maria alive to day

The End of the Temeraire

After Trafalgar the battered *Téméraire* was partially refitted at Gibraltar She was then able to return to England under sail and she anchored at Spithead on December 5 1805 Her captain having been made a Rear Admiral the *Temeraire* was handed over to Acting Captain Larmour who six months later paid her off for refit and repair in Portsmouth dockyard

For six years after Trafalgar the *Téméraire* continued on active service until she was finally paid off at Plymouth on March 20 1812 From that time she was employed on various routine duties her last being Guardship at Sheerness where appropriately her last captain was Thomas Forteseue Kennedy who had been First Lieutenant at Trafalgar and had led the boarding party that took the *Fougueux* The last guns ever fired by the *Temeraire* were for the Royal Salute in honour of Queen Victoria s coronation Six weeks later on April 16 1838 forty years after her launching she was sold out of the Navy to Mr J Beatson the Rotherhithe shipbreaker for £5 530

There remain relics of the wood of the *Temeraire* In the Castle shipbreaker s office at Millbank there was a mantlepiece supported by two figures of Atlas from the *Temeraire s* quarter gallery and St Paul s Church Rotherhithe had its altar furniture made from the *Temeraire s* timbers The Maritime Museum Greenwich displays a small table constructed from the *Téméraire s* timbers

The Royal Navy later had a third *Téméraire* this time a battleship 8540 tons 4 guns built at Chatham launched in 1876 and she obtained her battle honours at Alexandria in 1882 In 1900 she was renamed *Indus II*

The fourth and last *Temeraire* battleship 18600 tons 30 guns was built at Devonport launched in 1907 and was present at the Battle of Jutland in 1916 She was sold for breaking up in 1921

Turner's Fighting Temeraire

The great English artist Joseph Mallord William Turner (1775 1851) had in 1806 painted The Death of Nelson and The Victory returning from Trafalgar The story goes that Turner and some of his friends including Clarkson Stanfield (described by Ruskin as the leader of the English Realists) were boating on the Thames that evening in 1838 when the *Temeraire* was being towed on her final voyage to Rotherhithe against the setting sun Stanfield said to Turner That s a fine picture The sequel was the magnificent painting by Turner The Fighting *Téméraire* tugged to her last berth to be broken up which was exhibited at the Royal Academy in 1839 and now hangs in the National Gallery London (fig 7) In this masterpiece Turner painted the *Téméraire* as a pale ghostlike ship being towed by a squat black tug against a beautiful sunset which in addition to conveying the pathos of

Reproduced by courtesy of the Tr[illegible] Pl[illegible] Nat[illegible] Gallery, [illegible]

Fig 7 *The Fighting Téméraire towed her last berth Painting in oils (1838) by J M W Turner (1775-1851)*

the death of a great fighting ship was also symbolic of the passing of an era — the old romantic sailing ships giving way to mechanical steam

John Ruskin (1819 1900) who met Turner in 1840 and published the first volume of "Modern Painters" in 1843 described this picture in the most eloquent if somewhat turgid prose

This painter's last ship crowned in the Trafalgar hour of trial with chief victory, presiding over the fated vessel that had given Nelson death — such if anything whom a naval deserved honour as affection we owed them him. Those with that strewed so full hast into battle, that brought how that struck the surf as she, enlarging silently, in stand fast haste fell front in the shot resistless and without reply, those triple ports whose chains of flame rang forth in thick convoy into the fierce revenging monsoons, hoch. Men it had at its left an answering voice let rest one man upon the sea against the strength of England. Those sides that were set with the long ancients of English life blood like press planks at vintage, gleaming gorgeous crimson down to the oars and dripping of the washing foam — those pinnacles that stayed thousand lives of against the wave, shaking out their ensigns through the thunder till said and ensign dropped — stayed in the death still put to of Andalusian sea burning, with its winnes-sheets of human souls at rest — such for that some sacred sun in light have been left in our thoughts some quiet space amidst the lapse of English waters? Nay, not so, we have stern keepers in trust laughing in — the fine and the worm. Perhaps where the lo— gate opens in some cottage garden the tired traveller may ask why, the moss grows in green on its rugged wood, and even the sickness child may not answer, may know that the right dew lies in the wet rents of the wood of the old Temeraire

And Herman Melville (1819 1891) after seeing Turner's painting in 1857 lamented the passing of a naval era in his poem *The Temeraire*

But Trafalgar is in grave
The mortar deck undone
The carved and gilded mass fire
That evening gun
O Titan Temeraire
Your stern lights fade away
Your bulwarks to the years must yield
And heart of oak decay
A pigmy steam tug tows you
Gigantic in the bay. —
Dismantled of your guns and spars
And sweeping wings of sun
That rivets clench the iron clads
Men learn a deadlier lore
But fame has nailed your battle flag
Young boys it sails before
O the naves old and broken
O the Temeraire no more

And Sir Henry Newbolt (1862-1938) in his final stanza of *The Fighting Téméraire* wrote

Now the sunset breezes shiver
Téméraire Téméraire!
And she's fading down the river
Téméraire Téméraire!
Now the sunset breezes shiver
And she's fading down the river
But in England's song for ever
She's the fighting Téméraire

Admiral Sir Elab Harvey would have been gratified at these posthumous tributes to himself and his ship

Acknowledgement

I wish to express my thanks to Major General Edward H Goulburn DSO for his kind cooperation and permission to allow reproduction of the Harvey family portraits of Doctor William Harvey Admiral Sir Elab Harvey the picture of the *Téméraire* at Trafalgar and also the three letters quoted in the Appendix

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Appendix

Extract of Letter from Captain Eliab Harvey to Louisa Harvey

Oct 23rd 1805

The winds were light and from the westward Lord Nelson with his fleet made sail for Gibraltar straight and arrived within sight of Cape Trafalgar soon after sun day light on the 29th under the apprehension that they would have evaded themselves of the opportunity of passing the gut and proceeding to London What was our delight in seeing the signal for the Enemy in the northward During the whole of the day repeated signals were made showing their bearing and during the night we saw them rockets and false fires out As soon as the day appeared of the 21st we saw those that thirty three sail of the line the rest frigates or smaller vessels It was soon before the action commenced The first ship in action was the Royal Sovereign I did not see any other ship engaged before Lord Nelson opened his fire on the Enemy they having opened upon him from the Santissima Trinidada about ten minutes as well as from several other ships of them ahead of her The Téméraire at this time almost touched the stern of the Victory which station she had taken about a quarter of an hour previously to the Enemy s having commenced their fire upon the Victory Lord Nelson had just in time and given me leave to lead and break through the enemy s line about the 14th ship from the van From this period for nearly two hours we were so nearly engaged that I can give you no adieu account of this part of this most glorious day's work than what immediately concerned the Victory and myself We were engaged with the Santissima Trinidada and the other ships for perhaps twenty minutes or more I then ceased my firing for a minute or two fearing I might from the thickness of the smoke be firing into the Victory I soon saw the Victory close on board a French ship of two decks and having Téméraire under command notwithstanding she had suffered in rig I placed the ship so as to give the Redoubtable a severe dressing by raking of her fore and aft The Victory fell on board of her and she struck Soon after they tried to board the Temeraire the Frenchman between the two ships being on my star board side Prevents to this I had commenced an another ship on starboard gunn and we put her into so disabled a state that we fell on board of her also and she struck I sent Lieutenant Kennedy my first lieutenant with a party of men to secure this prize Finding the Victory had got clear of the Redoubtable I sent my second Lieutenant in twenty her and ordered both these ships to be secured lashed to the Téméraire Santa Anna a Spanish three decker having raked us all this time When the smoke began to clear away I saw the Royal Sovereign in the place in which I had seen the Santa Anna for about half an hour I thought the battle was as near an end and I made a signal for a frigate to take us in tow when I was informed some of the Enemy s ships were coming up astern of us They proved to be four French ships apparently in good order attending to escape in the southward when they were about three quarters of a mile in windward they opened their guns upon Téméraire For some time I could return no fire but when those we could fight were brought to bear upon the Enemy they hauled off and this towards the evening this ended this most glorious action The Sirius bore down in obedience to my signal and took Téméraire in tow and the Phoebe took one of the prizes also in tow at this time our object was to go to Gibraltar but the wind was contrary Constant and severe gales having prevented our getting there since The state of Téméraire is so bad we have been in constant apprehension of our lives every sail and yard destroyed nothing but the lower masts left standing the mizzen head quite gone and lower masts shot through in several places

Extract of letter from Captain Eliab Harvey to Louisa Harvey

Oct 25th 1805

We have had severe south and southwest winds and we can not undeard off the enemy s coast nor far from Cadiz The Sirius kept me in tow for two days but Admiral Collingwood made a signal for her to leave me as the enemy s ships were attempting to cut some of our prizes Ever since the battle it has been very bad weather we have had constant rain and an almost continual gale of wind shocking weather for our poor wounded

Letter from Louisa Harvey to General Grosvenor

Portsmouth Nov 5th 1805

My Dear General

As I conceive you will have great pleasure in reading a letter from a happiness profound glory, a writing, I shall enclose you a few more particulars of our Brave Tars. Shackeng, ed the Santissima Trinidada and Redoubtable fought for half an hour together with Victory, when the Redoubtable was unmasked and fell on board the Téméraire which she did by her mainmast fall across the poop of Téméraire together with three French little commanders with which our Admiral Lord Nelson commenced the action, near to Mayhew, the side of the mound at Chigwell. The Admiral Grosvenor—as heard to say after the action when he saw our Tars turn Admiral. Ah ja cousins then we Téméraire lo and he had reason to say, as both Bucentaur and Santissima Trinidada suffered most considerably from the fire. The [illegible] and Redoubtable on each side Tars [illegible] 474 men and the other 309. all Tars in shots. The Redoubtable with a very unsuccessful rashness during the conquest and while securely lashed to Téméraire three constitutible matter on board Téméraire which fell down out of the hatch tars killed two men and set the ship on fire as least seven and on fire and by a great presence of presence. Had they succeeded in their aim their own ship Pouguevx must have been blown up with them having so search lashed together. Tars brave was nearly in fourthreetimes. One done Admiral was thus a matter of losing his great life by the fall of Temeraire mizzen mast on the poop. He had but a moment to jump down upon deck, no lives were lost by the accident. The five French ships which fired upon a Téméraire in their flight were so at so well handled by Tars were as soon as he could bring his guns to bear upon them.

Struck by Lightning — The Effects upon the Men and the Ships of HM Navy

H. Cannell

The terrible clap of thunder slew four of our men outright their necks being wrung in sunder without speaking any word Of our 94 men there was not one unmouched Some were struck blind others bruised in legs and arms Some were bruised in their breasts so that they vomited blood two days after Still others were drawn out at length as if they had been racked but all recovered save the four

This disaster was recorded by Sir James Lancaster in 1591 when off Cape Corrientes on a voyage to Brazil He went on to describe how the mainmast of his small ship was splintered from its head to the deck and how some iron spikes ten inches within the timber were melted A strike by lightning was the true cause but at that time it was customary to attribute lightning damage to ships buildings or men as due to the dreaded thunder stone[1]

Before and since that time the history of seafaring has recorded many such acts of God In fact it is probable that many losses of wooden ships could have occurred after lightning had set them on fire or so disabled them that they were wrecked

The description of the injuries to Lancaster s ship and her men would serve as a basis for a modern account of the extraordinary and interesting sequelae of lightning strikes on humans Yet even more remarkable was that death or injury from lightning appeared to be just one more hazard that the men who sailed British ships throughout the world s oceans were prepared to face

Lightning whilst often disabling ships usually but not always caused injury Samuel Pepys recounted in his diary for June 26 1663 that his host Sir W Rider knew of a Genoese galley that had been struck on the mast by lightning whilst at Leghorn Roads The strike broke the mast into pieces but also melted the leg shackle of a slave oarsman yet did not injure his leg The story does not have a happy ending for despite entreaties from many present the slave was reshackled to the rowing bench

Even occupants of small boats were not exempt from strikes by lighting For example in 1666 two scholars of Wadham College Oxford had just pushed off from the shore when they were hit by a stroke of lightning Both were thrown out of the boat One of them was killed instantly the other was stuck feet first in the muddy river bank He was paralysed stunned and had no recollection of how he came to be standing there The dead scholar was subjected to a post-mortem examination next day by four doctors including an eminent medical man and natural philosopher Dr Wallis Wallis (1666) found small black burn marks on both sides of the victim s neck On the chest the burns had spread out from the points of entry There was a fist sized ragged hole on the side of his hat and the buttons of his doublet had been torn off The remainder of the autopsy which found the internal organs normal was conducted hurriedly for

the whole body had become swollen and smelt offensive due to the warm weather This description of the post mortem appears to be the first such case recorded in detail and certainly the first account available to me of a death caused by lightning striking the occupants of a boat

The paralysed state of the injured man similarly appears to be the first description of this terrifying complication of a strike by lightning Unfortunately the details of his subsequent recovery or otherwise were not available to the author Dr Wallis

Even the most modern accounts of the effects of strikes upon humans state that the mechanism of death by lightning remains comparatively unresearched Survivors of the effects of a direct or indirect lightning strike are recorded as suffering burns unconsciousness with retrograde amnesia and varying degrees of paralysis Some are apparently dead but recover if prolonged resuscitation is given

The possibility of recovery from loss of consciousness or from apparent death was well known to sailing men by the beginning of the 19th century but was also of sufficient interest to be published *HMS Sir Francis Drake* was off Java on December 8 1806 (Naval Chronicle 1807) when she was struck by lightning The 13 men who were on deck at the time were resuscitated by inflation of their lungs by friction to the bare skin and by throwing buckets of water over them It was suggested that had galvanic batteries been available it would have been useful to pass gentle electric shocks into their chests This type of treatment was also given to the apparently drowned Whether resuscitation was attempted depended upon the knowledge of those present including the ship s surgeon All too often then as now resuscitation was not attempted as most people felt it was impossible for anybody to survive a strike by lightning For example two years later in 1808 *HMS Sultan* (Naval Chronicle 1808) had nine prime seamen killed by lightning No record was made of any attempted resuscitation although it was stated that three other men were treated for wounds caused by the same flash

Accurate records of deaths and injuries to sailors from lighting were however largely ignored prior to 1780 for there were so many other causes such as disease drowning ship to ship combats in war time as well as the numerous accidents which occurred when ships were at sea in all weathers The best record of lightning injuries in sailors was compiled by Sir William Snow Harris the inventor of the fixed lightning conductor for ships By careful study of Captains journals and the ships logs Snow Harris (1854) found that during the period 1777 1851 some 350 seamen of the Royal Navy had been killed or injured by lightning

His analysis of 280 cases of HM Ships which had been struck showed that about 40 of them were set on fire and about 70 so disabled even within a specified short period of five years that they had to return to port for repairs thus depriving the country of their services often at critical times He went on to state that in his opinion every ship in the navy had been struck by lightning at some time and often on several occasions

These facts as recorded by Snow Harris in 1854 showed that even though protection from lightning by means of conductors for important public buildings and power magazines was by then of an acceptable standard that for HM ships was clearly less than adequate In order to explain how HM Navy could continue to allow this state of affairs it is necessary to go back in history and trace the development of the marine lightning conductor

Prior to Benjamin Franklin s invention and use of the lightning rod and conductor in Philadelphia in 1753 little was known about protection from lightning strikes

Still less was it appreciated that lightning was a form of electricity It was known that the effects of lightning upon ships was sometimes dangerous in other ways for not only did it damage masts and men by its direct action but it also affected the ship s compass Anderson (1885) records that one of two ships sailing together near Bermuda was struck by lightning in 1675 The compass of the ship which had been struck had the polarity reversed and the companion ship so fortunately present had to take over the navigation Not so fortunate was Captain Waddell in January 1749 His ship was struck the mainmast broken and several planks in the hull started from the timbers In addition to disabling the captain and most of the crew by loss of sight and paralysis the virtue of the loadstones from each of the four compasses on board was lost Despite these calamities the loss of the mizzenmast and nearly all the sails the ship managed to get back into Cowes about 12 days later although in a very shattered condition When examined later the compasses were found by a Dr. Knight (Waddell 1749) to have had their polarity completely reversed

Accidents such as these were commonplace although not every ship s captain encountering severe storms of thunder and lightning returned to tell the tale As far as the ships which can be said to have been part of the Royal Navy were concerned the earliest example of a lightning strike available to me concerns Richard I's fleet for the first Crusade in 1191 One of his galleys was struck and sunk whilst wintering in Messina (Clowes 1897)

The *Grace Dieu* built by Huggekyns in Southampton for Henry V in July 1418 was a much larger vessel having at least two masts and being about 1400 tons deadweight It is said that she probably never set sail but as she was leaky was laid up in a mud berth and her mainmast taken out Her remains can be seen to this day at very low tide in the mouth of the Hamble for there she sank after catching fire through lightning in January 1439 (Howarth 1974)

Two ships *HMS Royal James* and *Coronation* were struck by lightning in Portsmouth on October 23 1685 (Phil Trans 1685) The *Royal James* was being careened For this she had an especially strong mast put into her to act as spar by which the ship could be heeled The mast was made up of several balks of timber which were bound together by large iron hoops The lightning stroke shivered the entire mast and broke one of the iron hoops In the same storm *Coronation* received a visit from ball lightning This eerie form of lightning occasionally occurs during thunderstorms Singer (1977) states that about a thousand observations of ball lightning have been made during the last 150 years by many independent and scientifically trained observers In this same storm in 1685 a ball of fire floated into a gun room aboard *Coronation* It then struck a boy who was thrown overboard and knocked unconscious several workmen as well as scorching timbers and breaking glass windows before dispersing itself on the deck

The frightening damage caused by all forms of lightning was thought at the time to be due to an explosive effect similar to gunpowder the evidence for this being the sulphurous smell like that of gunpowder after lightning had struck (Wallis 1697) The same strong smell of sulphur was present after ball lightning struck *HMS Montague* on November 4 1749 (Henry and Lowe 1754) The ball of fire had floated just above the surface of the sea until it had reached the ship when it rose vertically above the main chains of the bowsprit and exploded Five men were knocked down one of them being badly burnt The main topmast as well as the mainmast itself were

Fig 1 HMS V[illegible] Admiral Lo[illegible] killed [illegible] into Plymouth

shattered

Snow Harris statistics of damage by lightning in the first half of the nineteenth century (fig 1) were therefore the formal gathering together of what must have been a large and recurrent loss of ships and men So great were the known hazards before Snow Harris time that Franklin himself suggested the application of his method of lightning protection be applied to ships In his book first published in 1751 which had reached an extended second edition by 1754 he suggested that ships should have a sharp pointed conductor placed on top of the mast From this a wire should be led down the shrouds and then down her side to the water The Americans adopted this system for both their merchant vessels as well as their navy from that time on

By 1762 a Dr William Watson had become interested in the large number of accidents caused by lightning which continued to affect unprotected British ships He quoted several instances (Watson 1762) including the loss of the mainmast and considerable damage to the decks and bulkhead of the Harriott packet boat during a passage to New York Many men were injured he reported the ship set on fire and the compasses made useless He also quoted the case of *HMS Bellona* a 74 gun ship which had her mast shattered by lightning

Dr Watson s proposat differed from Franklin s in detail His idea was that the metal work at the top of masts should form the lightning rod This metal work usually took the form of pointed spindles which could rotate and on which a wind vane in the form of an arrow was mounted From the spindle or in the absence of one the iron cap to the masthead a brass wire about as thick as a large goose quill was to be led

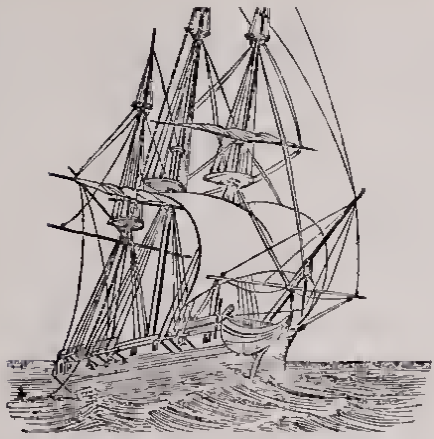

Fig 2 *The chain conductor first used and then discarded by the fleet It constantly caught in the rigging broke had to be taken in on tacking and caused many accidents*

Drawing from Thunderstorms by W Sam Harris 1843

down the mast of the ship and eventually hung over the side so as always to touch the water Lord Anson at that time First Sea Lord asked Dr Watson to send him his design for this lightning conductor for ships Before he died later in 1762 Lord Anson directed (Clowes 1897) that each of HM Ships was to be supplied with Watson s type of lightning conductor and that they were to be tried up when a thunderstorm threatened Although Dr Watson s proposal to protect ships from lightning was theoretically useful it was also impracticable for the brass wire became caught in the rigging and it must have been difficult to be sure that the end of it was always trailing in the water However Watson s idea of leading the wire down the mast was a worthwhile one If the wire had been led all the way down to the step of the mast and thence to the hull it would have been an even better one for just one year earlier in 1761 Anson (Barrow 1834) had ordered that the hulls of RN ships were to be sheathed in copper the frigate *HMS Alarm* being the first to be sheathed in this way Later it became routine for all HM Ship s hulls to be sheathed in copper as a protection against barnacles and the toredo worm Had Watson s primitive conductors been earthed to this copper covering many of the later accidents damage and death from lightning might have been lessened if not avoided

The Americans continued to develop their practical knowledge of lightning conductors for ships A Captain Winn (1770) wrote to Franklin stating that following Franklin's invention of the lightning conductor he had always seen to it that his ship had a conductor up when a thunderstorm threatened The form of the conductor (fig 2) was however different from Franklin's original design Winn stated that he used a copper chain rather than iron wire To both ends of the chain were fastened fine points..one point for the masthead the other being trailed in the water The chain was led by and fastened to the main topmast back stay In this way he protected his ship from lightning strikes despite on one occasion some of the links of the chain being broken Captain Winn's chain seems to have been the first use of that excellent conductor copper for a ship's protection system

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The Biochemistry of Earthquakes

S. P. Gray

The Federation of European Biochemical Societies had decided to hold their Special Meeting on Enzymes this April in Cavtat some dozen miles south of Dubrovnik Yugoslavia and I was fortunate enough to be allocated an hour to present my research findings By January all my preparations were made hotel booked deposits made and the paper and poster ready for presentation

I left Heathrow on Easter Saturday on the lunchtime flight to Zagreb an hour late Again when I reached Zagreb there were further delays in the flights to Dubrovnik Each hour there came the announcement The next information on this flight will be in an hour s time Eventually I arrived at my hotel in Cavtat some four hours later than scheduled It was clear at the hotel that I was not expected They had not received my deposit Just an administrative hitch I thought and produced my own evidence of booking I was given a room somewhat reluctantly and was obliged to carry my luggage upstairs

At seven o clock the following morning Easter Sunday I was rudely awakened by a violent shaking of my bed and the sound of furniture falling around the room The clock at my bedside had been thrown onto the floor and creaking groaning and banging noises filled the air In the corridor outside shouts could be heard and some cries came from the hotel grounds I ran to the bedroom balcony in my pyjamas and saw some of the hotel staff gesticulating and beckoning me to hurry down There were eight flights of stairs to descend — I was on the fourth floor — and time seemed short but as I went to the corridor the vibration and noise diminished suddenly so I dressed very quickly and ran downstairs Astonishingly the hotel staff were now quite composed but uncommunicative and disinclined to discuss what had obviously been an earthquake No news was available and as few of the visitors understood Serbo Croatian communication was limited I suppose most of us felt we had experienced a local minor earthquake of no real importance

After breakfast however I saw signs of damage which were not obvious earlier a small wall by the sea had collapsed new rockfall scars could be seen on the surrounding mountains and my bedroom balcony had two cracks in the structure Again in Dubrovnik many of the buildings were closed and cracks could be seen in roofs while temporary shoring timbers were everywhere As the rumours circulated and the stories became more detailed we realised that the small walled town of Kotor fifty miles to the south of Cavtat lay in ruins and some lives had been lost In general however our hosts played down the incident and we had little idea of the extent of the catastrophe We were told not to worry but this was not easy tremors occurred all the time and sleep was often disturbed When I mentioned this almost diffidently to one of our hosts he told me that Dubrovnik had experienced some 350 tremors in the two days following the earthquake! So not to

Earthquake damage — By kind [illegible]

worry

On the Easter Monday — a working day — I realised that the money I had sent in January had not in fact arrived at the Congress and clearly I was expected to pay out again So I arranged for a telex to be sent to my bank in Gosport and waited for the reply None came during the week of the Congress and it was only on my return to England that I found that the message had not been sent It appeared that most lines to the rest of Europe were blocked by earthquake news and by many visitors trying to book out on any available flight Most of us however were wrapped up in Congress affairs and were blissfully ignorant of the real problems So I paid up — less than cheerfully — and got on with the scientific aspect of my visit

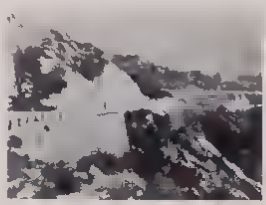
On the Thursday morning I presented my findings of the previous year in RNH Haslar and the contribution seemed to be well received The afternoon was a free one for the 850 members of the Congress and I had booked a short river and island cruise Unfortunately due to technical reasons they said "this trip has been cancelled so we will go to a small town Trebinje in Bosnia Herzogovina instead So to Trebinje we agreed to go

While travelling along a narrow mountain road we were startled to hear shouts from the rear of the bus where the French contingent sat Two of the French women were crying "There is smoke coming up through the deck! The driver stopped made some soothing noises and went to investigate

All out all out he shouted the bus is on fire It was and he was last out The French were first

The engine had caught fire and the flames were extinguished with some difficulty and the coach was rendered useless As we stood forlornly on this lonely mountain road it began to rain heavily After about an hour another coach summoned by radio picked us up and we continued our journey to the hinterland At Trebinje there was more evidence of damage to buildings and we were unable to visit those of interest and were directed to the open air market to "see the people" By then unfortunately it was midday and the people were dismantling their stalls and going home We were returned to our hotels without further incident but little the wiser about Yugoslav culture

On returning to the Congress hall on Friday a colleague mentioned to one of the officials that her daughter had telephoned from England where there was a great deal of anxiety about our presence in an earthquake area in which many people had died It is all propaganda he said "other



The international [illegible]

crackers in trying to spoil our tourist trade by exaggerating the whole thing — sure some lives were lost but it is due to nature and not our fault! His reaction was so vehement and outraged that we began to realise that we had been on the periphery of a major incident and we were largely ignorant of it. I discovered later that my own family had been trying to contact me at the meeting and at the hotel without success during the whole week of the conference and were very worried indeed.

Clearly the earthquake had been a sizeable catastrophe to the Yugoslavs and they had tried their best not to spread anxiety or alarm amongst the visitors presumably to protect and minimise damage to the tourist trade. Dubrovnik lies in the Mediterranean circle of fire they explained and yet the experience was not such a common one. one Yugoslav told me he had lived in the area for twenty seven years and this was the first earthquake he remembered — he thought he had been hit by a crashing aircraft!

The little I saw of the Yugoslav countryside was beautiful and well worth visiting for a holiday. Our conference was of the highest international standing and included lectures from two Nobel prize winners. I left with the impression of a country and its people trying hard to be good hosts and companions to a varied international scientific community. My return to Heathrow and terra firma nevertheless was a considerable relief to myself and family.

The next meeting is in Jerusalem.

INTERNATIONAL SYMPOSIUM ON THE INFLUENCE OF NUTRITION UPON NAVAL AND MARITIME HISTORY

This symposium will be held at the National Maritime Museum, Greenwich, London, on Thursday, April 17 and Friday April 18, 1980. It is being organised by the Museum in association with the Wellcome Institute for the History of Medicine to examine nutritional factors in naval and maritime history, with particular reference to their influence on decision making by commanding officers in the light of recent medical and historical research. Themes include vitamin requirements of the human body, clinical manifestations of vitamin deficiencies, energy requirements in health, health and neurological factors in decision making, the history and implications of processed food. The symposium chairman will be Sir Francis Avery Jones and the committee includes Surgeon Vice Admiral Sir James Watt, Surgeon Captain G. J. Milton Thompson, Dr William Brittain, Mr Eric Freeman and Professor Christopher Lloyd. There will be a full supporting social programme.

Full details may be obtained from the Conference Officer, National Maritime Museum, Greenwich, London SE10 9NF (telephone 01-858 4422 ext 26).

BOOK REVIEWS

PRICE'S TEXTBOOK OF THE PRACTICE OF MEDICINE 12th Edition Ed Sir Ronald Bodley Scott Oxford Univers ty Press £25 00

It is said that because of the pace and scale of developments in medicine the day of the large textbook is over Certainly no one man could today write one if it is to be authoritative and up to date over the whole field But there is a place for such a book in the author but with a firm editorial tone and format and as up to date as possible Such a book has a place in every doctor s shelf for him to maintain a balanced access to knowledge in fields outside his own a role only partly played by the general journals — often eschewed by those immersed in the technicalities of their specialty or generality with its concern for people and the effect on their lives of their diseases

The 12th edition of Price published five years after the last fulfills this role admirably and Sir Ronald Bodley Scott is to be congratulated on his editorship and his selected team It is particularly gratifying to note the selection of so many novel medical affiliates in the Environmental Section who were serving at IMM at the time of their authorship of these sections

This 12th edition can be recommended as a useful reference textbook It is sad that there are some errors of indexing and page numbering in relation to chapter headings It is gratifying that the new editor maintains physiological and biochemical — as well as anatomical — introductions of the main sections

This is a comprehensive and authoritative textbook of modern medicine Its appendices are useful and similarly comprehensive and the bibliography is modern and up to date as one would expect from a textbook in which each section is written by an active expert in the particular field covered by the section To browse in it is admirable and this invariably happens when one consults it for reference

Despite its unwieldy size I can recommend it as a reference textbook to medical officers who may revise their basics when they consult it **JABH**

AVIATION MEDICINE Vol 1 Physiology and Human Factors pp 777 £18 00 Vol 2 Health and Clinical Aspects pp 333 £12 00 Editor in Chief Air Marshall Sir Geoffrey Dhenin 1st edition London Tri Med Books Ltd

This is the only substantial British textbook on the subject to appear since the publication in 1965 of A Textbook of Aviation Physiology (Ed J A Gillies) and again the first British book to attempt coverage of all the major aspects of aviation medicine in one publication It is in two volumes in order that the physiological and psychological principles may be studied side by side with an occupational or clinical problem Volume 1 whose scope is similar to that of Gillies, has been prepared by members of staff of the Royal Air Force Institute of Aviation Medicine and Volume 2 by Royal Air Force consultants and members of the Health and Safety Services of British Airways

As with any book which is exposed to the inherent pitfalls of having no less than 35 contributors and of dealing with a subject with many different aspects and ill-defined boundaries it is inevitable that it is all too easily criticised at the expense of its achievements. Aviation medicine is certainly not accepted and arguably the most noticeable feature is the imbalance of scope and detail in the treatment of different topics Much of Volume 1 for example reflects the considerable RAF experience and understanding of all the problems of high performance fixed wing military aircraft it does not concern itself with topics which are specific to army or naval aviation and with a few exceptions aspects of rotary wing aviation are dealt with by a short overview By comparison with most of Volume 1 the treatment of some subjects in Volume 2 is relatively superficial and elementary However it would be churlish to dwell on shortcomings in view of the undoubted overall value of this book as an elementary and readable textbook which deals with the essential foundations of the specialty It is unique not only because it presents a British perspective but because for the first time it draws together under one cover seemingly self contained and disparate areas of knowledge It also demonstrates of some more rather indirectly that these areas are interdependent and mutually complementary ingredients necessary for the proper understanding and practice of any branch of aviation medicine The newcomer to the subject will no doubt be surprised to learn that much of this specialty is concerned not with conventional clinical medicine but with the means and limitations of adapting healthy man to his task in the hostile environment of the air The authors and editors deserve credit for having achieved such a formidable task and it is to be hoped that in due course this difficulties they must have experienced will not dissuade them from producing a second edition

As a primer covering the diverse syllabus the candidate for the Diploma in Aviation Medicine cannot afford to be without a copy and those either with a passing interest or actually engaged in the specialty will welcome the availability at long last of a single source for much of their basic information The cost of £30 for the two volumes will be beyond the reach of many individual pockets however any department or medical centre dealing with aviation at circ rew should consider it an essential for the department bookshelf **EPB**

FRENCH'S INDEX OF DIFFERENTIAL DIAGNOSIS 11th Edition Ed. F Dudley Hart Pp 1003 Bristol John Wright and Sons Ltd £29 50

It first struck fear into many a medical student before I had learned that the ignorance it revealed in me was universal if not universally so profound. Of reason I had no business to be reading it but I was bewitched from its first edition in 1912 as one not to the experienced practitioner but a presenting symptom. This has remained his principal use since and in fulfilling it the book remains unique

Mentally however it is not a mere assembly of lists of diseases those daunting melancholy and mind sapping tables which the modern candidate for higher qualifications must commit to his protesting memory It is one that gives us pause to think that one can for example count 158 orthopaedics if one is otherwise not a loon for useful occupation but they appear rarely and only an aide to the logical classification and arrangement of the text in which one finds the constantly grateful benison of interesting illuminating and readable prose. What solace to the jaded mind to read page after page of lucid and compelling English in a medical work and how thin is the of distinguished contributors has demonstrated that civilised man is mankind not merely by the acquisition of knowledge but by his ability to transmit it through the written word

Such is the breadth and quality of this book a content that to class it simply as an aid in difficult diagnoses is woefully to underestimate it Indeed one wonders how often it is so used It is difficult to visualise the hard pressed musician scurrying furtively to his sick room his problem patient temporarily relieved by an unnecessary thermometer while he thumbs his pages for a new idea It is not in this hurry hurry of mind or round but in the relative tranquillity of the day's end prompted perhaps by some newly discovered inadequacy that one turns to it Then follow two refreshingly and timely lessons Firstly and repeatedly one discovers that diagnostic difficulties commonly result from the short man which we all take when pressed for them The second is a corollary of the first that if we talk to the patient long enough and have the patience to listen intelligently he will usually tell you what is wrong with him for French's logical and comprehensive essays constantly reaffirm that it is symptoms and signs which delineate diseases

Apart from the search for specific information this is a book into which one can dip again and again for pleasure and profit To open it at random is to enjoy discovery of rediscovery from an immense fund in peculiar opening monographs on abdominal pain whose diagnostic pitfalls it vividly expresses to interesting sentences which demonstrate that the limb movements associated with yawning are reflex and not voluntary A book weighing 5½ lbs can hardly be described as a bedside book or vade mecum but to me it is the professional equivalent of one's favourite anthology not just a history work of reference but a book to own

Taste and interest will determine one's favourite sections from the masterly essay on obesity through disorders of gait and their many causes to speech defects and on through all the specialities but there is also the spice of surprising or obscure information in revealing than the reviewer wishes revealing his own ignorance but he has reached the age of which he recognises further disappointment in the unprofitable The reader will of course already know that *gelotophagia* is a drop attack precipitated by laughter and that moulin name for *hay fever* is *coryza a foeno* as well as recalling the etymology of *grumous* meaning thick and viscid from the Latin *grumus* a small heap to heap in itself! But I bet nobody has recently seen a case of *plumbism* which naturally means the passage of hairs in the urine Seen thus only owners which a pelvic dermoid cyst ruptures into the bladder it must be uncommon and it is not surprising that we need a special word for it And what *Berlioche dermatitis* which I need hardly explain is the solar hypersensitivity skin pigmentation provoked by the local application of bergamot oil which we all know in the man constituent of eau de Cologne? Or the *Riley Day* syndrome as a congenital cause of Charcot's joints exclusive to Ashkenazic Jews?

And so it goes on until one knows that the full area of one's ignorance is not yet mapped one is at present only exploring its fringes But hope there was one chink of personal light The *Marchiafava Michiafava* syndrome had no surprises for me but there is no reference to that other syndrome carrying Marchiafava's name which raving you indulgence is an hepatic disorder of Italian expatriates red wine drinkers in New York It was the only point I missed

But let me leave one with you What is Frottoirisme? I affirm nine, it is also known as the linkerloo syndrome

TRWH

RADIOLOGY OF THE SKULL AND BRAIN Vol. 4 Ventricles and Cisterns Eds Thomas H Newton MD and D Gordon Potts MD Pp 611 London C.V. Mosby Medical Publishers Ltd £40 75

There are numerous contributors to this volume which leads in some differences in styles between the different chapters and occasional repetition This does not detract from the overall excellence

There is a short first chapter of general interest on the historical aspects by Edwin Clarke of the Wellcome Institute of the History of Medicine Thereafter the remainder of the volume is for the more-to-the-point Thin concise chapter dealing with the technique of pneumoencephalography and ventriculography includes the indications and contra indications for the examination The complications which may ensue are also detailed

Each ventricular and subarachnoid cisternal system is examined in detail under separate chapter headings Congenital malformations cerebral atrophy and hydrocephalus receive special attention in separate chapters An extensive bibliography accompanies each chapter

There are many illustrations of the normal macroscopic and microscopic anatomy to amplify the text The majority of illustrations demonstrating the radiographic findings are of tomographic cuts and these give an excellent representation of detail

Pneumoencephalography and ventriculography are used less frequently with the advent of computed tomography This technological advance has however put even more emphasis upon a sound knowledge of the ventricles and cisterns This volume provides a reference for the normal and abnormal appearances.

It must also be realised that not all units have a CT capacity and that pneumography will continue to be used in those cases where angiography does not give a definitive diagnosis.

FWP

ADVANCES IN INTERNAL MEDICINE. Vol 24 G H Stalleriman P 551 London Y8 Medical Publishers Ltd £27·00

Most doctors engaged in general or specialist practice find it both arduous and time-consuming to read the journals and keep themselves up to date. The annual publication of Advances In Internal Medicine by Year Book Publishers provides a welcome opportunity to read excellent reviews of the most important advances of the year.

This year a tradition maintaining the very high standard expected of this series and includes reviews on a variety of topics which are of special interest to the service physician esp. ally those on the Athlete s Heart the New Look at Venereal Disease and in Drug Abuse.

There are also very good sections on clinical pharmacology which include the Mode of Action of Aspirin Like Drugs the Problem of Oral Hypoglycaemia Agents and the Clinical Pharmacology of the Steroidal Oral Contraceptives. The review on digitalis glycosides is timely in view of em changing attitudes to the use of these drugs.

There is a valuable chapter on the non invasive assessment of left ventricular function using echocardiography or radionuclide techniques. This is an important aspect of cardiology and although these investigations have limitations and will not replace invasive tests they may be used to screen and select patients for cardiac catheterisation.

Other chapters include the Treatment of Respiratory Insufficiency The Natural History and Management of Polycythaemia Vera Antivirals with Clinical Potential the important new concept of Steroid Receptors in Cancer Therapy and the use of Computed Tomography of Abdominal Organs.

This is an excellent collection of important topical reviews which should provide interesting and stimulating reading. It has something for everyone and should not be missed.

RBH

TEXTBOOK OF DIAGNOSTIC ULTRASONOGRAPHY Sandra Nagen Ameri EA KDMS Pp 493 London Y8 Mad ical Publishers Ltd £28·25

This American textbook is written by a radiographer with an apparent wealth of experience in ultrasound. Primarily written for radiographers it deserves a place on the departmental library shelf.

The text is simple and direct. The introductory chapter on the physics of ultrasound is very basic and could have been expanded. The UK radiographer would require more depth of knowledge for the Diploma in Medical Ultrasound.

The imaging techniques for echocardiography and individual organs are well described in the text and illustrated by photographs.

The great attraction of this book is the illustrations. There are line drawings of the gross anatomy and photographs of cross sections of cadavers help the understanding of the interpretation of the B mode ultrasound display.

The majority of ultrasound examinations are reproduced in grey scale. Many pathological conditions are demonstrated and the book therefore also serves as a reference atlas.

This volume is ideal for the radiographer hoping to specialise in ultrasound and also for the trainee radiologist.

FWP

ATLAS OF PAEDIATRIC NUCLEAR MEDICINE P O Alderson D L Gilday and Harry Wagner Jr Pp 296 London Y8 Medical Publishers Ltd £30·50

This book is directed towards paediatricians and students of the diagnostic imaging specialties and is intended to provide a current easy to use source that explains how nuclear medicine is used to evaluate a variety of paediatric problems. The authors have set out to do this by presenting a large series of clinical problems indicating appropriate isotope studies and commenting on their usefulness in the diagnosis and management of each case. The representative problems are arranged systematically and are clearly and comprehensively indexed. The book is well illustrated with isotope scans and relevant radiographic components being added on interpretation. Technical considerations are kept to a minimum but there is a brief note on patient preparation and sedation.

I think that the authors have succeeded in their aim of providing a guide to the potential of isotope studies in paediatric medicine and they have done so by giving a comprehensive and up to date list of indications for the various static and dynamic imaging techniques. There is much to recommend a book of this type in an age when new diagnostic tests and methods are continually being proposed and it is impossible for the clinician to be aware of every diagnostic avenue open to him.

AB

PATHWAYS IN SURGICAL MANAGEMENT M Hobslaw Pp 343 London Edward Arnold (Publishers) Ltd £13·75

Questions in both MB and final FRCS examinations have moved from requiring dissertations on surgical disease states towards the management of surgical problem situations. This move has not been accompanied by a change in the type of surgical text book produced to intel the surgical trainee.

In his book however Professor Hobslaw teaches the correct approach to a problem with a working diagnosis rather than listing the pathological possibilities of the differential diagnosis. This conceptual change is an important step adjustment to which the newly qualified doctor and surgical trainee can occasionally find difficult.

Situated in the more common diagnostic surgical problem situations and 10 acute general surgical problems are discussed together with the pre and post operative difficulties which arise in the management of a patient. For each problem a flow chart of the suggested line of management is given. This is a test on to follow the flow chart explaining the terms used and the reasons why certain signs and symptoms are that certain in a particular condition.

No attempt is made to justify the type of treatment suggested not are the results of trial of such treatment quoted. These are not relevant to the philosophy behind this book.

While it is difficult to criticise a book which seeks to teach such an important philosophy I would have found it easier to read had the flow chart preceded rather than followed the text to which it refers but this is a minor carp and the text itself is very readable. Even in this inflationary days the book could perhaps have been less expensive. Many similar size texts in other university disciplines sell at this price.

Nevertheless this book must which heartily be recommended to medical students surgical trainees and to those responsible for the surgical training.

Many outside the realm of surgery will also find this a most useful reference book of surgical management.

EWT

LOCAL ANALGESIA Clive Jolly. Second edition. Pp 152. London: H. K. Lewis & Co. Ltd. £5.00

The publication by H. K. Lewis of a second edition of Dr Jolly's book Local Analgesia after a lapse of 17 years is in sympathy with the present renewed interest in local and regional techniques whether as a means of producing analgesia for surgery for reducing operative blood loss or for relieving pain from a variety of causes.

The original edition had a wide distribution and as the anatomical basis of blocks does not change copies are still to hand. The new edition is similar in format and approximate size but sections such as pharmacology have been thoroughly updated and certain other sections of topical interest expanded in particular those on analgesia of the leg ankle and foot analgesia epidural analgesia and therapeutic blocks.

Dr Jolly has an easy readable style and his excellent first chapter on general principles with its many discerning observations commends him as a man writing from considerable personal experience. In the second chapter he summarises the pharmacological properties of the local analgesia vasoconstrictor and vasopressor drugs in common use in this country. Following this is a chapter on complications which in many ways supplements the first chapter and deals not only with major and dramatic complications but also those mishaps which although less grave reduce the confidence of patients and colleagues alike.

Next follow the chapters dealing with local analgesia in specific regions. Much of the material here has required little revision. Special prominence is properly given to techniques in everyday use such as brachial plexus block, intravenous regional analgesia digital nerve block and intercostal nerve block. A great many other blocks are described in varying detail. Some of these blocks are rarely performed nowadays but about by occasional performers and the inclusion of details of the techniques involved would have been omitted without detriment to the book. Reinforces would have suffised.

The nursing chapters on subarachnoid (spinal) analgesia and epidural analgesia are enjoyable and illuminating with a clear account of principles and practice. Personally I would have preferred to see these two chapters more further expanded to the extent that many readers would probably appreciate a more precise account of these techniques and possibly more illustrations.

The book ends with a full and helpful list of references and some suggestions for further reading.

Reviewing this book for the Journal of the Royal Naval Medical Service one feels obliged to compare it with the text presently included in the scale for RN Ships namely Eriksson's Illustrated Handbook of Local Anaesthesia. Although Jolly's book deals better with general and underlying principles Eriksson with its superb illustrations must still in my view rank as the best reference book for use at sea. Regrettably it has recently been hard to acquire and in the circumstances Jolly's book provides a fully acceptable substitute and very good value for money.

RR

TREATMENT — A HANDBOOK OF DRUG THERAPY Ed. V. W. M. Dinn, O. L. Wade, L. Brecky and F. Ainsbury. London: Kluwer Publishing Ltd. £6.50 plus annual subscription of £7.00

This book is described by the President of the Royal College of General Practitioners as a very necessary supplement and provides text on therapeutics for general practitioners which by general subscription can be readily updated by an inserting loose-leaf method. The first half of the text is in note form and contains similar but more carefully selected information on drugs than that provided by the ABPI Data Sheet Compendium. This invents usefully groups drugs under the various body systems and sub groups them according to their therapeutic properties this allows easy comparison of the insomnia the various anti arrhythmics. The second section on treatment is by multiple general practitioners and each chapter has its authority reinforced by the distinguished editorial board.

The concept is new and attractive and the content excellent but I fear that the binding system and complicated page numbering will not prove strong or simple enough for a busy and harassed general practitioner rapidly seeking information during a busy surgery.

JMB

PATIENTS AND THEIR DOCTORS Colin Bennet. Pp 217. London: Baillière Tindall. £3.75.

This is a soft bound book aimed at medical students and young practitioners with a view to improving their understanding of the needs of patients and the effect of their behaviour on patients. It is a well laid out book with each chapter neatly summarised. The preface and the chapters on the psychology of doctors are however somewhat philosophical and possibly of limited value to the target audience.

The main body of the book is generally well written and contains using non technical language. Certain sections are of greatest importance these include the meaning of the patient the response of the patient to illness and the factors involved in the response. The author describes the traumatic effects of the hospital environment and poor communication upon the patient increasing his anxious anticipation and fear. The behavioural responses of the patient are described in a way which could help the inexperienced practitioner understand what is going on behind the behaviour. The problem of spinal hospital environments are discussed and in particular the difficulties of post operative care and intensive care. The psychology of the patient's experience of pain and the problems of intractable pain are discussed rather too briefly. The results of treatment including mutilation and terminal care are dealt with in a particularly understandable way.

One of the merits of this book is that it can be picked up and put down and read in a piecemeal manner. It is felt that this book could be of help to a young houseman overwhelmed by the psychological stresses and demands of his new job.

AWSB

TODAY'S TREATMENT/3. Pp 318. British Medical Journal. £5.50

The title of this book is a misnomer. It is a 318 page collection of articles published in the British Medical Journal in 1977 and 1978. It covers diseases of the

respiratory system and urinary system and the use of antibiotics. But the sections on the chest and urinary tract are not confined entirely to treatment. The book starts with an excellent chapter on the structure and function of the lungs and subsequent articles review not only the treatment but the pathogenesis and diagnosis of asthma, chronic bronchitis, emphysema, bronchiectasis, neoplasms and pneumonia. There is also an excellent chapter on respiratory failure.

The section on diseases of the urinary system contains less background but covers such useful topics as the treatment of blood disorders in renal disease and renal failure, prescribing for patients with renal failure and drug induced renal disorders. The coverage is comprehensive and the book provides a most useful handy reference volume.

The first section on antibiotics is again comprehensive though the depth of detail is perhaps lacking particularly in the chapters on anti fungal therapy and the penicillins.

Overall this is a most useful book and well recommended for postgraduate study as well as an aid for day to day management. **JGW**

GASTROINTESTINAL ENDOSCOPY — AN INTRODUCTION FOR ASSISTANTS David Heslinders. Pp 168 London Baillière Tindall £4.75.

The rapid technological development of the gastrointestinal fibroscopes has led to their widespread application for diagnosis and a variety of therapeutic procedures. This concise introduction for gastroenterology department assistants fills an obvious gap in the nursing literature and is comprehensive of endoscopy. It is illustrated with well labelled black and white photographs and explained line drawings. I would not encourage the Eder-Finestow guide wire to be coiled in the stomach as shown in the figure and would suggest that the endoscope should hang down to drain in the cupboard rather than be suspended as shown in the photograph.

Many aspects of endoscopic technique are of personal preference and this folding patients for upper gastrointestinal endoscopy is not one I would support. It suggests a firing squad to the patient and prevents the essential co-operative relationship with the endoscopist. These criticisms highlight the variations of technique used by differ nt endoscopists which is not simply brought out in the text.

This remains a useful book especially for those nursing staff who will have responsibilities for patients undergoing endoscopic procedures and particularly those working in the gastroenterology department. I hope however that they will use it as a guide rather than a bible. **RHH**

ERRATUM

Macleod M A and Blacklock N. J. (1979) UVL induced changes in calcium absorption and excretion and in serum Vit D3 levels measured in black skinned and caucasian males. IRNMS 65 75 78.
The authors gratefully acknowledge the assistance of Dr Minnie Pincunk of the Mineral Metabolic Unit Leeds Royal Infirmary who carried out the Vit D3 radioimmunoassay.

Jones, A G E. The dangerous voyage of Captain Thomas James, 1631 32 JRNMS 65 93 98
The picture of Captain James was reproduced from "*Captain Thomas James and the North West Passage*" by C M Maclennes by kind permission of the publishers the Bristol Branch of the Historical Association. Copies of the pamphlet are available from the University of Bristol.

The Vancouver Style

The Vancouver document was prepared as a draft in 1978 by members of the International Steering Committee of Medical Editors and published as a discussion document. This was well received by many other editors and at a further meeting of the group in Montreal in February 1979 uniform requirements for manuscripts submitted to biomedical journals were agreed. Several British journals have already adopted the Vancouver style, others will do so in next year and the Journal of the Royal Naval Medical Service will participate in the scheme as from the March 1980 issue.

The Vancouver document was printed in full in the British Medical Journal The main departure from current Journal practice will be the adoption of the numbered reference system and the relevant section is printed below.*

**British Medical Journal 1979 1 532 535*

References

Number references consecutively in the order in which they are first mentioned in the text. Identify references in text, tables and legends by arabic numerals (in parentheses). References cited only in tables or in legends to figures should be numbered in accordance with a sequence established by the first identification in the text of the particular table or illustration.

Use the form of references adopted by the US National Library of Medicine and used in *Index Medicus*. Use the style of the examples cited at the end of this section, which have been approved by the National Library of Medicine.

The titles of journals should be abbreviated according to the style used in *Index Medicus*. For abbreviated names of journals consult the "List of Journals Indexed", printed annually in the January issue of *Index Medicus*.

Try to avoid using abstracts as references. Unpublished "observations" and "personal communications" may not be used as references, although references to written, not verbal, communications may be inserted (in parentheses) in the text. Include among the references manuscripts accepted but not yet published; designate the journal followed by "in press" (in parentheses). Information from manuscripts submitted but not yet accepted should be cited in the text as "unpublished observations" (in parentheses).

The references must be verified by the author(s) against the original documents.

Examples of correct forms of references are given below.

Journal

(1) *Standard journal article* — (List all authors when six or less, when seven or more list only first three and add et al.)

Soter NA, Wasserman SI, Austen KF. Cold urticaria: release into the circulation of histamine and eosinophil chemotactic factor of anaphylaxis during cold challenge. N Engl J Med 1976; 294: 687-90.

(2) *Corporate author*

The Committee on Enzymes of the Scandinavian Society for Clinical Chemistry and Clinical Physiology. Recommended method for the determination of gamma glutamyltransferase in blood. Scand J Clin Lab Invest 1976; 36: 119-25.

Anonymous. Epidemiology for primary health care. Int J Epidemiol 1976; 5: 224-5.

Books and other monographs

(3) *Personal author(s)*

Osler AG. Complement: mechanisms and functions. Englewood Cliffs: Prentice Hall; 1976.

(4) *Corporate author*

American Medical Association Department of Drugs. AMA drug evaluations. 3rd ed. Littleton: Publishing Sciences Group; 1977.

(5) *Editor, compiler, chairman as author*

Rhodes AJ, Van Rooyen CE, comps. Textbook of virology: for students and practitioners of medicine and the other health sciences. 5th ed. Baltimore: Williams & Wilkins; 1968.

(6) *Chapter in book*

Weinstein L, Swartz MN. Pathogenic properties of invading micro-organisms. In: Sodeman WA, Jr, Sodeman WA, eds. Pathologic physiology: mechanisms of disease. Philadelphia: WB Saunders; 1974: 457-72.

(7) *Agency publication*

National Center for Health Statistics. Acute conditions: incidence and associated disability. United States, July 1968–June 1969. Rockville, Md: National Center for Health Statistics; 1972. (Vital and health statistics. Series 10. Data from the National Health Survey; No. 69) (DHEW publication No. (HSM) 72-1036).

Other articles

(8) *Newspaper article*

Sheffer RA. Advances in chemistry are alerting to unlock mysteries of the brain: discoveries could help cure alcoholism and insomnia, explain mental illness. How the messengers work. Wall Street Journal 1977 Aug 12; 1(col 1): 10(col 1).

(9) *Magazine article*

Roueché B. Annals of medicine: The Santa Claus culture. The New Yorker 1971 Sep 4: 68-81.

SERVICE NEWS

THE ROYAL NAVY MEDICAL CLUB DINNER
1979

The annual dinner of the Royal Navy Medical Club was held in the Painted Hall Royal Naval College Greenwich on Friday September 7 1979

The President, Surgeon Vice Admiral Sir John Rawlins, KBE, QHP, FRCP, FFCM, FRAeS, delivered the follow ng speech

Under Secretary of State Second Sea Lord Admiral President of the College Distinguished Guests Ladies and Gentlemen.

This is the third and last time that I run from this rapacious chair — which might well have the Arthurian inscription The Siege Perilous — to address members of the Naval Medical Club and their guests

I have endeavoured on past occasions to eschew sentimentous preamble and to plunge into the heart of the Naval Medical Service which after a good dinner are stupefying to the senses ruinous to the digestion inappropriate to the pleasures of Cibarion self indulgence — and dreadfully boring to our guests

But this is my valedictory and there are many matters which some of you will expect me to touch upon I cannot deal with them all for that would take far too long, but for a start I believe you will forgive me for glancing briefly at what has been achieved in the past year and what still remains to be done As last as this latter is concerned I can look upon the problem of the future with a good deal more equanimity in the presence of my heir apparent the MDG Designate Surgeon Rear Admiral John Harrison whom I congratulate upon his selection and with whom I count so much upon his future success

Well then to the matter of pay medical officers have really done pretty well Last year's pay rise averaging 13 per cent was a healthy improvement upon the 10 per cent forecast And this year averaged no less than 33 per cent — which was more than any of us expected A senior Surgeon Captain now gets more pay than a Surgeon Rear Admiral especially if he is paid as a Consultant — which is a little anomalous but as I pointed out to the Director General Naval Personal Services I have no difficulty in recruiting Surgeon Rear Admirals Indeed the selection to Surgeon Rear Admiral of Surgeon Captain Roger Lambert and Surgeon Captain Mike Kinsman was announced this time last week and I send them my best congratulations At the same time I express my deep gratitude to Surgeon Rear Admiral Ian Colley who is also making his last appearance in uniform at the Annual Dinner for the splendid work he has done as SRA (Ships and Establishments) — which has resulted in the perpetuation of an appointment the future of which seemed extremely uncertain two years ago

Apropos the good news on pay I recall the words of a previous DGNPS Admiral Herman on his last appearance at the running of Second Sea Lord's Deputies I gazed into my crystal ball he said and behold the year 2000 The holocaust had ended The world lay in ruins From the smoking rubble emerged the last men alive the Adjutant General the Second Sea Lord and the Air Member for Personnel As they did so three other figures emerged Sophia Loren Julie Christie and Shirley MacLaine Astounded and delighted they fell into each another's arms and Sophia Loren said It is an awesome responsibility to re-populate the world Said the Adjutant General We will assign that under the heading of Any Other Business For the first time on the agenda I should like your joint agreement to restitution of the Full Military Salary Prophetic words! The Full Military Salary has been restored in the year 1979

Another achievement which I believe to be important is the provision for extension of service for selected Surgeon Commanders and Surgeon Captains to age 60 without narrowing upon the numerical ceiling for their respective ranks Terminal Grants are payable at the age at which they would normally retire 55 or 57 with full pay continuing until their final retirement date This I think goes far to iron out the unlevel ship difference in terms of service between ourselves and the Army and Royal Air Force Furthermore it is likely to result a number promotion compared with our sister services

I cannot say to what extent these latter are responsible for the gratifying reduction in the number of premature voluntary retirements — indeed several requests for PVR that were in the pipeline have been withdrawn — and there has been an equally gratifying increase in the recruitment of medical cadets. All this is encouraging However we are by no means out of the woods yet Direct entries of qualified doctors are few and far between We are still down in numbers of medical officers and it will be some years before the medical entry catches up with the natural wastage due to completion of Short and Medium Career Commissions

and retirements. We have had wonderful support from the NHS in the way of part time assistance by civilian consultants and the RNR has as always been magnificent.

To give a few examples — RNR medical officers will support the Army in Belize by covering the operational Field Surgical Team commitment from September to December this year, a Surgeon Commander and Surgeon Lieutenant Commander RNR took over as SMOs of the Tri Service medical team at the Royal Tournament while, in addition to treating 375 nasal closed shut cardiac massage and mouth to mouth resuscitation saved the life of an elderly man who collapsed with a heart attack. And once again Surgeon Commander Barry RNR has done another full patrol in Arnhem mountains.

The MDG Designate sees the future to fall somewhere as his major target and he has come up with some imaginative ideas for the three Rs, Recruiting, Retention and Retrieval. Conventional advertising is very expensive and not very productive. It costs £1 000 in advertising to get every MO registered. An outfit said if £1 000 were to be paid to every MO who recruits neither our books would soon be full!

Personal contact in the best form of advertising. Admiral Harrison proposes medical teach in at the Naval Hospitals and Institute of Naval Medicine for final year undergraduate doctors in their pre registration and early post registration years. We fill off an contribution in many seminars not symposia, but mainly we are talking to our contemporaries. We should save young of our energy to talk to the young men who are potential medical officers of the future.

Surgeon Commander McKay of my staff struck the right note recently when he sailed with 15 medical cadets in the naval yachts *Dasher* and *Explorer* in Chesterfield and back. Some weeks later Professor Noel Dilly Surgeon Lieutenant Commander RNR skippered *Explorer* in the disastrous Fastnet race and indeed he safe and sound upon the west coast of Ireland. Noel Dilly neemate been a harmless life When sent to Culdrose for training and encouraged to make a jump into the sea in wetsuit and flippers from a helicopter he readily assented! At 300 feet Surgeon Captain Sandy David was touched him on the shoulder to indicate stand by to jump and Noel Dilly promptly jumped! That hand to be a friend all round high.

Other highlights of the year include the presentation of Medal of the Gilbert Blane Medal to now retired Surgeon Captain Peter Cleave who simultaneously received the highly prestigious Hinshaw Award of the Royal Institute of Public Health. It was he who during World War II relieved the men of the Far East Fleet of cockroaches by feeding them hand reared pups of Burma Mess of as though his brain fixation — and the other fixations which occupied his leisure hours — no accommodation. During one of his numerous battles in the correspondence columns of the Lancet in 1958 the then Surgeon Commander Stanley Miles said to me at the RN Physiological Laboratory Cleave is batty isn't he? Of course I replied. By the way said Stanley do you be any chance take brass for breakfast? An a matter of fact I do I admitted. So do I he said as we

Will now Peter Cleave has been christened by the Press the Bran Man and even the New Scientist has joined the ranks of those who praise his work as one of the outstanding contributors to medicine of the last fifty years. The Gilbert Blane Medal has never before been awarded in retrospect, but both the Board of Curators of the Royal College of Physicians and the Council of the Royal College of Surgeons agreed that it should be no limitation as it just been done.

Naval medical officers still become involved in interesting projects. Excellent clinical research which is widely acclaimed in carried out in the naval hospitals. Equally fine physiological research animates from the staff of the Institute of Naval Medicine and then year two more medical officers have obtained PhDs.

Detail of this research is to be found in the reports of the Environmental and Clinical Research Working Parties both of which were set up by my distinguished predecessor Sir James Watt who is with us tonight. The MDG within living memory did not much to raise the pitiful clinical standard of the Naval Medical Service.

It is really true that much of the fine and sun have gone out of naval medicine. Gone are the days of the China Station Surgeon from Malta first still young medical officers visit his off shores in the survey ships and take part in a variety of expeditions. Surgeon Lieutenant Binns for example was one of the Tri Service team of the British Hovercraft expedition to the Kali Gandaki River. I commend to you his lively account of his experiences in the Naval Medical Journal. This Journal also includes valuable scientific articles, has gripping accounts of naval medical activities in Northern Ireland and on air sea rescue activities and a recent number included the beautiful and moving address given by Professor Antoine FRS at the memorial service to Dr Chris Wright that panoramic of research into submarine escape and underwater blast. Any medical officer who had his pain blasted in the test tank during Chris Wright's demonstration is unlikely to forget the experience!

Another notable contribution to the Journal in the past year was the late Earl Mountbatten. The Editor published in full the very address which he gave to the Society of Chartered Physiotherapists and which caused a good deal of alarm and despondency amongst the orthodox at the time of its delivery. His violent death was a shock in as all yet he had a friend of living into humbling old age. Of course he had no fear of death he had faced it often enough and was in great form on Monsoon when planning his funeral and suggesting his epitaph. Amongst many, many other qualities he will be remembered as an excellent after dinner speaker. I heard him speak on Trafalgar Night in Collingwood some years ago. He told a delightful story which I am sure he would wish to survive him. It was during the war when he had his headquarters at Chatham. He had a brand new Wren driver who was dispatched to London to pick up an American Admiral. The weather was chilly and she had to bring about the remarkable lot her passenger. At last he arrived took his seat in the back of the official fast blank and she heeled for Chatham. Finding through a wood she suddenly pulled into a lay by. Left the car without saying a word and climbed over a stile into the wooden. A minute or two later evidently embarrassed she slid into the driver's seat and sped on to Chatham. At his destination Admiral Mountbatten himself and his Flag Lieutenant were waiting on the steps. She pulled up in an around the car and threw open the rear door — no Admiral!

Admiral Mountbatten, who claims in his article in the Journal to have been referred to as Dr Mountbatten on occasion was a notable guest of the Club. So was his distinguished father, whose foresight as First Sea Lord led to the founding of the RN Medical School here in RNC Greenwich on May 1 1912.

Tonight we have a number of distinguished guests some official, some private. First and foremost is our Guest of Honour, the Under Secretary of State for the Navy, Mr. Keith Speed who as many of you will know was a Dartmouth cadet and a regular naval officer who fought in the Korean war. I am told that he broke a leg while playing football at Dartmouth and was treated in the Royal Naval Hospital Haslar. I do not know. Sir whether you have had occasion to visit Haslar since but I exhort you to do so. I am sure you will find great and encouraging changes. We are having major problems with the rebuild of the hospital but it now boasts a standard of excellence of which we can all be justly proud and the Orthopaedic Department in particular compares favourably in volume of work and the skill of its staff with that of any hospital of comparable size in the country.

The late Second Sea Lord, Sir Gordon Tait, listed in the Creed to which he resolutely adhered. I believe that an efficient, professional and respected Medical Service is essential to the good health of the Navy and to the good health of the Naval Medical Service. When he replied on behalf of the guests at the First Annual Dinner at which I presided he pledged his support. In the 2½ years that we served together he never swerved from that promise and working with him and for him was both a privilege and a pleasure. He has been a great friend to us all.

We welcome tonight his successor, Admiral Sir Desmond Cassidi, an aviator, an acute intellect, a formidable man in debate but blessed withal with a disarming sense of humour. He has the reputation of being a great man to have on your side and a holy terror in opposition! There is a challenge for you! I believe we are in for a lively time ahead and perhaps next year my successor will continue to have him sing for his supper. I have no doubt that it will be worth hearing.

Another distinguished official guest is Sir Douglas Black, President of the Royal College of Physicians who has been another strong supporter. If we can manage to impress the Royal Colleges with our work we have nothing to fear from the professional angle. We also have Dr. Peter Swann, President of the Faculty of Occupational Medicine, a Faculty which will I believe in future embrace many of our specialist medical officers and we particularly welcome Rear Admiral Barker, Medical Director General of the Federal German Navy.

Last but never least we have Admiral Cooke, Admiral President of the College to whom, together with the President of the Mess Commodore Deller and the Mess Manager Lieutenant Commander Edwards, we are indebted for our splendid meal in these incomparable surroundings. This is the third and last of our Annual Dinners during Lieutenant Commander Edwards' tenure of office. He has done us proud and we wish him well in his next appointment.

There are many distinguished private guests and I would like to extend a special welcome to one, he is Dr. Gerald Vaughan, Minister of State for Health, the guest of Surgeon Captain Gill. And I would like also to introduce one of my own private guests, Lieutenant Commander John Coggan. He is Captain of HMS *Reclaim*, the Navy's oldest warship... which was commissioned in the same year that I was, and the last to boast a reciprocating steam engine. By his courtesy I went to sea in *Reclaim* off Gibraltar and Tangier and amongst other things we carried out a dive together. Few MDGs can have been privileged to go to sea during their time of office and it is a great experience which I strongly recommend to my successor.

Ladies and Gentlemen you have been very patient with me. I have just one commercial plug to make — on behalf of the Naval Medical Compassionate Fund. The Fund provides support for the dependents of naval medical officers who may find themselves in distressed circumstances. For example, the Fund to date has awarded £3750 to the divorced wife of a deceased medical officer to help with the education of her daughter. The Fund as you see has a long arm. The cost to you is only £1.05 per year which you can pay by banker's order and forget all about it. It is not relatively small as a subscription these days and it amazes me that only three per cent of serving medical officers subscribe. For you was good and that of less fortunate others please join us. Your contact is the Secretary, Surgeon Commander Ronald Snow.

I should like to end on a light note. Earlier this year I had a meeting in Aberdeen and stayed with an old schoolfriend who sent me out fishing with his young ghillie. The fishing was poor and the ghillie reminisced as ghillies are want to do. He told me he learnt his trade under Buchenon, head ghillie on a stretch of the Spey, a hard man he said with a dour sense of humour. I mind the day when Buchenon and I came on a lady sitting on the bank with a rod beside her. Now no permit was needed to fish for trout but fishing for the salmon was strictly preserved. Buchenon raised his deer stalker and said 'I see you've been fishing mibudy'. 'Yes' she said 'Do you mind telling me what you're fishing for?' She looked him in the eye as bold as brass and said 'I fish for men'. Now Buchenon was a handsome man but he just filled and lit his old pipe and then he said 'Weel you'll no catch any that way'. 'What do you mean?' she said. Buchenon took his pipe from his mouth and pointed with the stem 'You're sitting on the bait' he said.

Members of the Club I ask you to rise and take your glasses to our guests.

Mr Keith Speed, MP, Parliamentary Under Secretary of State for Defence for the Royal Navy replied on behalf of the guests.

I start by wishing Admiral Rawlins a happy and happy retirement when he leaves the Navy after a distinguished career next Spring. At the same time I give a warm welcome to Admiral Harrison who will be taking up the challenging appointment of MDG.

A word about my own credentials in speaking to such a distinguished gathering. I joined the RN in September 1947 as one of the last of the 13 year old entry at Dartmouth. In February 1948 after a soccer accident I spent a few days in RNH Stonehouse, followed by several weeks in RNAH Sherborne under Surgeon Commander Marchison. Much as he is affectionately known. When Sherborne closed the hospital moved lock stock and barrel to Haslar. I travelled with three other officer patients and a Surgeon Lieutenant in an ambulance. I had no idea there were so many public houses between Sherborne and Gosport! That young Surgeon Lieutenant would be a senior officer now and has much to answer for!

Politicians and doctors together perhaps with parish priests have many tasks in common. Particularly in an constituency duties. It is no coincidence that our regular advice bureaux are called surgeries. Today it is very important that we keep in close touch with our

constituents and take due account of what they say. This was not always the case. Some 260 years ago an MP, Mr Henry, writing to his constituents about the budget, which was then called the excise, said:

Gentlemen

I have received your letter about the excise, and I am surprised at your inclination to write to me at all. You know, and I know, that I bought this constituency. You know, and I know, that I am now determined to sell it, and you know what you think I don't know, that you are now looking out for another buyer. I know what you normally don't know, that I have now found another constituency to buy. About what you said about the excise, May God curse light on you all, and may it make your homes as open and as free to the excise officers as your votes and daughters have always been to me while I have represented your rascally constituency.

I have now been the Navy Minister for some 124 days and I would like to share briefly with you the scene as I see it. The job of our defence forces is to prepare for conflict, local or major, and in so preparing deter and prevent that conflict taking place.

The RN is also entrusted with the strategic nuclear deterrent in addition to its more traditional role of anti-submarine warfare, trade protection, mining and mine countermeasures. Our forces are dedicated to NATO which for thirty years has ensured the maintenance of a peace in Western Europe, Mediterranean and the Atlantic approaches of Western Europe and North America.

Of course, the RN has other important tasks. Fishery and offshore protection, search and rescue operations, surveying, showing the flag and emergency relief against disaster to name but a few.

It is this new Government's high priority to reinforce and modernise the importance of our defence policy and our armed forces. This was reiterated by the Prime Minister in her first major speech to Parliament. It was significantly the first item in the Queen's Speech. When we speak of the Armed Forces I include the Reserves and particularly the RNR who have a vital role to play within NATO and who have had a recent important financial boost.

We do well to remember the massive expansion in Soviet naval strength in recent years. Over 80 nuclear submarines built since 1970. One new class completed every six weeks. Two thirds of these submarines are launching platforms for seaborne strategic missiles. The quality of the latest submarines is high and in addition there are some 370 conventional diesel powered boats in service. At the same time the Soviets have been building five major surface warship each year since 1970, including two carriers in service and a third recently launched, possibly to be followed by a fourth and they are currently building a large 25 000 ton warship, probably nuclear powered, in their Leningrad Yard.

They now have 25 cruisers and 60 destroyers and frigates armed with missiles. They are building powerful amphibious warfare ships and expanding their naval air arm.

Why all this activity? Where is the threat? Certainly not from NATO nor the Chinese Navy. No responsible Government could or should ignore this building up. The price of liberty is eternal vigilance. I cannot overstress the importance and worth of a mixed or the Royal Navy building in the defence of the free world.

By the same token the importance of the Medical Branch in the Royal Navy is paramount. Frankly I consider that the armed services generally and supporting branches like you own in particular have been largely ignored by politicians and public alike for far too long — except when you are called upon to do some job because it is shirked by civilians.

It is time to change this. We cannot take our freedom and security for granted. The physical and mental fitness of the Navy has to be of the highest in view of the immense strain we put upon our men and women and the high standards we demand from them. I rely heavily upon you to see that this fitness is maintained and maintained.

In addition you play a role in the Navy in emergency tasks is of vital importance in saving life as we have so recently seen in the stirring work done by Surgeon Lieutenant Ian Geraghty and his team from *HMS Fife* in giving much needed medical aid after Hurricane David struck Dominica.

So MDG I want you and all your colleagues to know that you have the Government's confidence, backing and full support and our admiration for the high professional standards that are now recognised world wide. Let us stop worrying about our organisation or reorganisation and get on with the job for there is much to be done.

I cannot I am afraid promise you the manning standards I saw the other day in the *USS Nimitz* which carries no normal complement for doctors and five dentists! I don't know what these figures prove unless it is the corrosive power of American soft drinks and diet!

I thank you all for your work your dedication and your hospitality this morning. I wish you all every success in the future.

OBITUARIES

SURGEON VICE ADMIRAL SIR EDWARD GREESON KBE CB MD died on June 10, 1979 in Aldermay where his home had been since 1973. A former Royal Naval Chaplain the Reverend Bill Hankinson Brown, gave the address at the funeral service at St Anne's Church Aldermay.

Clarence Edward Greeson was born on November 29 1888 the son of a Presbyterian minister and educated at Aberdeen Grammar School and Aberdeen University graduating in medicine in 1910. He entered the Royal Naval Medical Service on the outbreak of the First World War and saw action in the battles of the Heligoland Bight the Falkland Islands and Gallipoli. In 1927 he served in the Shanghai Defence Force with the 12th Brigade Royal Marines. During the Second World War he was Fleet Medical Officer Mediterranean Fleet, and was present at the battle of Cape Matapan.

Sir Edward was awarded the CB in 1945 for distinguished service throughout the war in Europe and appointed Honorary Physician to King George VI in 1946. He became Medical Director General of the Navy at the end of 1948. He was made KBE in 1950 and retired from the Royal Navy in 1952.

Sir Edward's first and second wives predeceased him and he is survived by his third wife and stepdaughter.

Surgeon Rear Admiral D F Gard writes

In 1949 just after his appointment as Medical Director-General Admiral Greeson invited me to join his staff at Queen Anne's Mansions. This appointment had one disadvantage for me in that it held no prospect of fleet work but apart from this it was the happiest and most amusing episode of my time in the Service.

I had met Admiral Greeson [illegible] I knew him to be a shrewd but kindly man. As Director I soon found was kept aware exactly what was in his mind and he liked people to drop in for a few words during a working day. He himself liked to wander about the Department dropping in on his officers and their civilian staff in a very informal manner. He liked to know everything that was going on and the feelings and views of his assistants. One of our duties was to search the daily newspapers for any material which could have any bearing on the Medical Branch of the Navy in that we could let press inquiries could be answered with speed and accuracy. This efficient handling of this aspect of departmental work was a source of much admiration and astonishment in many quarters.

Admiral Greeson abhorred the ringing, unanswered telephone and any effect leaving the building had to consider all incoming calls to the extension of a colleague in order which sometimes gave one some insight into the sporting inclinations of one's friends. On Saturdays the Department had to be manned by an Captain and two Commanders until 1 pm after which time one officer was on telephone alert for the rest of the weekend.

Edward Greeson was a complete master of paper work. He could write masterly minutes and read the thoughts behind the writings of others. We used to write many comments on his behalf and I used to [illegible] phrases with as. This has long been a matter of much concern to MDG [illegible]. This problem is somewhat MOG's target. I was summoned and asked to make a [illegible] matters by Admiral Greeson who thought he ought to have some knowledge of them for future reference.

He had also an any skill in picking the right man for the right job. On instance of this was that instead of delivering the usual speech at the annual dinner of the Royal Navy Medical Club he delegated the duty to Surgeon Commander J L S Coulter. That speech and the encore the following years will never be forgotten by those privileged to hear them.

It goes against tradition to have been asked to write this small appreciation of a Director who was not fully appreciated by some of his officers because of his unusual approach to his task but he was very affluent and hard working. He was loved by his staff at Queen Anne's Mansions. It was not often that one could walk along the corridor without hearing hearty laughter coming from one office or another. The Director's interest in the health, happiness and welfare of his helpers was well known they repaid it by their affection and unswerving loyalty towards him.

We regret to remind the death of **SURGEON VICE ADMIRAL SIR CYRIL MAY, KBE CB MC FRCS LRCP** on September 17 1979 at the age of 82. Sir Cyril was Medical Director-General of the Navy from 1956 to 1960. An obituary will be published in the next issue of the Journal.

As announced in the Summer issue SIR CECIL WAKELEY, KBE, CB, DSc, LLD, FRCS, FRCS Ed, FACS, FRACS, FRS Ed died on June 7, 1979.

Surgeon Vice Admiral Sir James Watt writes

Sir Cecil Wakeley, the Navy's senior Civilian Consultant, died in his retired old age at his home in Chatham, the Medway towns he had chosen for retirement and which appropriately enough, includes the church of the two most significant influences in his life: his Scottish origins and his life long association with the Royal Navy.

Sir Cecil was born in Rochester, Kent and was educated at Dulwich College before training in medicine at King's College and King's College Hospital. After qualifying in 1932 he joined the Royal Navy as a Temporary Surgeon and was appointed to the Naval Hospital at Smith Quay, Surrey in turn to receive an influx of severely wounded casualties from the Battle of Jutland which awakened an abiding interest in the surgery of trauma and of burns in particular. One of his first of over two hundred articles was published during these formative years and appeared in the Lancet in 1936 describing the compound fractures with large massive defects which were a feature of the injuries caused by powerful high explosive shells in the ships of that era. This following year, in the Journal of the Royal Naval Medical Service, young Wakeley described the pathology and treatment of over one hundred burns in naval patients providing a scientific basis for a thoroughly modern approach to therapy, based upon the extent and depth of the burn and advocating early, gentle, fine replacement expositive of the burned surface to the open air, early skin grafting and vaccines for resistant infections. He was also the first to describe the nature of the injuries caused by underwater blast. But his interest was not confined exclusively to trauma, for he wrote on polydactylism and the Journal of 1937 records his success in removing a sloughing stump from a patient with acute pancreatitis — a surgical triumph for those days.

Wakeley, however, was ahead of his time and his observations on burns and blast injuries were ignored until the Second World War demonstrated they, he investigated further. Wakeley, now a Surgeon Rear Admiral at the Royal Naval Hospital Haslar, was invited to undertake research into the course of underwater blast injury. Working in collaboration with Dr Cameron Wright and Surgeon Commander F. R. P. Williams he undertook a series of animal experiments which provided Professor G. K. Cameron with material for his meticulous histological studies and a series of famous papers on the nature and mechanism of the injury appeared in the medical Press. There were further contributions in the treatment of burns and concerning the sequelae of the pulmonary complications. Wakeley treated his cases with method.

Wakeley was now at the height of his powers and while at Haslar designed the underground operating theatre and wrote on such diverse subjects as cancer of the colon, faecal fistula, cyst of the epididymis, war wounds, drawing inguinal hernia and the surgical treatment of syringomyelia. His interest in naval medical history led to a dynamic and informative article on the early history and development of Haslar Hospital which compared its architectural style with those of Plymouth and Chatham. It was therefore natural that he should excel as Thomas Vicary Lecturer at the Royal College of Surgeons in 1956 when he chose as his subject Surgeons and the Navy.

Sir Cecil was a Navy man at heart, known affectionately by colleagues and subordinates at Kings as the Admiral. He had the mercurial, impromptu dynamism, wheedling manner, dexterity, humour, skills and above all the solid loyalty of the sailor and proved a staunch friend to all who sought his advice and aid. He never forgot a face and he hated bombing never allowing seniority or protocol to intrude into his relations with the young naval surgeons. It was his pleasure to turn Staff and Instruction Officers, who were never unkind and were directed, especially in the Admiralty, towards improving the standards of naval surgery which among his long range as Civilian Consultant he did so much to promote.

Honours were heaped upon him. He was awarded the CB in 1941, the KBE in 1946 and became a Baronet in 1952 during an outstanding term as President of the Royal College of Surgeons of England when he saw the College rebuilt and the Institute of Basic Medical Sciences established. He was an international figure and his foreign decorations included the Order of the Nile, the Legion of Merit USA, Chevalier Legion d'honneur and the Order of the Southern Cross Brazil while his was the recipient of numerous honorary degrees. But he was quite unaffected by success and found time to give to the British Empire Cancer Campaign, St John's Ambulance, the Chartered Society of Physiotherapy, the Royal Life Saving Society, student Christian Societies, the Welsh Language societies, church activities and a host of other interests including the family farm at Kanthan.

It was perhaps his simple Christian faith tempered no doubt by the stamina developed as a child in walking night miles to chapel every Sunday which enabled Sir Cecil to accomplish so much in so many different fields without the least sign of stress, arrogance or affectation. Yet no tribute to Sir Cecil would be complete without acknowledging the unobtrusive and kindly influence of Lady Wakeley who in the shadows provided a loving, stable and generous home environment, perhaps most conspicuously during the war years in Haslar in the house on the Terrace. Countless numbers of naval surgeons hold them in affectionate regard.

Surgeon Rear Admiral D. P. Gard writes

It would be just to state that no Civilian Consultant did more to advance the reputation of the Medical Branch of the Navy than did Sir Cecil Wakeley. He had seen naval service during the First World War and on the outbreak of the second conflict his was reaching the summit of his brilliant career.

Sir Cecil was a man of boundless energy, enthusiasm and vitality. As well as being a most versatile surgeon — whose field included the brain and central nervous system as well as the gastro-intestinal tract — he was a member of practically every important medical committee in the United Kingdom. He was an expert photographer, an internationally famous philatelist and a master fruit grower. A supplement of the Annals of the Royal College of Surgeons of England published on the occasion of his eighteen birthday gave a list of his pre-eminent achievements and publications which is astonishing in its number and versatility.

In the early fifties, when I was working at the Medical Department, some of us used to lunch each day at the Royal College of Surgeons. Sir Cecil would always invite us to join him and regale us with stories of the goings on in high medical circles and the

developments in the Medical Branches of the Armed Forces. He was a man of great personal kindness. He loved the Navy and his advice was always available. If he could not deal with a problem himself he would put one in touch with one of his friends who would invariably afford expert assistance. These matters could cover the health of relatives, insurance, legal matters and children's education. He was always accessible and invariably afforded great encouragement and comfort while radiating a sort of infectious optimism. It was impossible to fail to gain courage and confidence from his company and it is a great privilege to have enjoyed his kindness and interest over many years.

SURGEON COMMANDER J CARLTON MB, BS MRCS LRCP DPH, RN Retd, died on May 29 1979 at the age of 71.

Jack Carlton qualified at Guy's Hospital in 1930 and entered the Royal Naval Medical Service as a Surgeon Lieutenant in 1935. He was promoted to Surgeon Lieutenant Commander in 1941 and to Surgeon Commander in December 1949. His appointments included *HMS Howe*, RN Auxiliary Hospital Aberdeenshire, *HMS St Vincent, Kenya* and *Duedalus*. He was placed on the retired list at his own request in June, 1958.

RN MEDICAL AND DENTAL OFFICERS

HONOURS

Officer of the Order of St John of Jerusalem

Surgeon Lieutenant Commander G H G MacMillan

HIGHER QUALIFICATIONS

Surgeon Commander R da G Hansen — PhD
Surgeon Lieutenant Commander D J Baker — FFARCS
Surgeon Lieutenant Commander (D) D M Higgs — MSc (Advanced Conservation)
Surgeon Lieutenant Commander (D) I L Kelly — MSc (Periodontics)
Surgeon Lieutenant A G Marsden — MRCGP

AWARD TO RN MEDICAL OFFICER

Surgeon Lieutenant A G Marsden has received the 1979 Syntex Award for the Plymouth General Practice Vocational Scheme for his project and paper entitled Influenza prophylaxis in the elderly and at risk patients in an urban general practice.

PROMOTIONS AND APPOINTMENTS

To Surgeon Vice Admiral on March 18, 1980 and appointed Medical Director General (Naval)

J A B Harrison QHP

To Surgeon Rear Admiral on February 4, 1980, and appointed Surgeon Rear Admiral (Institute of Naval Medicine)

R J W Lambert

To Surgeon Rear Admiral on February 11, 1980, and appointed Surgeon Rear Admiral (Ships and Establishments)

F W Kinsman OBE

To Surgeon Commodore on March 18, 1980 and appointed Deputy Medical Director-General (Naval) and Director of Medical Personnel and Logistics

E. E. P Barnard

To Surgeon Lieutenant Commander

N F Brayley S H Desborough W M Edmondstone
D Ireland H O'Donnell J J W Sykes
P F R Tolley E H F Torrens J D Torrens
R J Wilson R J H Wingate

To Surgeon Lieutenant Commander (D)

J R T Hayward

To Surgeon Lieutenant

K J Aitchison A S C Allison T W F Banks
R J Clark E P Collinson M L Cowley
S D Evans P J G Hutchings A E MacLean
N M Moore W R Saywell S Q M Tighe P
P J Waugh

To Surgeon Lieutenant (D)

D A W Puckridge

To Acting Surgeon Lieutenant

R G Bemfield R A Bradley J A Campbell,
C P T Clague G W L Evans D Forman
K Gillespie D J O Griffith J R W Hall
M N Jeffrey E H N Oakley P J Raffaelli
C J Stoot C F Swinhoe D N Tulloch A J Walker
D J Ward G M F Woodroof

NEW ENTRIES

Surgeon Lieutenant Commander (D) J G Iles
Surgeon Lieutenant J M Hayward
Surgeon Lieutenants (D) R W Mills
R C Sanderson G T Thomson C J Woodward
Acting Surgeon Lieutenant D C Brown
Surgeon Sub-Lieutenants D R Eatham
G M Barkon R J Heckwith R F Bryce
N P J Cripps Gillian E Herrison M J Inwood
G E Kitson D N Jones J P Muell R. M Neuiem
C Pipkin S C Sheard

TRANSFERRED TO FULL CAREER COMMISSION

Surgeon Commander A C Enck
Surgeon Lieutenant Commanders D A. Cunningham
A I Flint I L Jenkins J O Saul

TRANSFERRED TO MEDIUM CAREER COMMISSION

Surgeon Lieutenant Commander P J Shoulet
Surgeon Lieutenants R E Ashton I H Gebb
I F Geraghty J J C Hogg D J Riddell
P C Knachmon

RETIREMENTS

Surgeon Commander A N Bennett
Surgeon Commander T L. Fallowfield
Surgeon Commander D R H Mende
Surgeon Commander R J Vonghan

RELEASED FROM SHORT CAREER COMMISSION

Surgeon Lieutenants J M Cobbe C C Hunter
A J H. Stocking D E Ward
Surgeon Lieutenant Commanders R C O H O Neill
E P H. Torrie

EXCHANGE APPOINTMENT

Stabsarzt (Surgeon Lieutenant Commander (D)) J Wejeaer Federal German Navy

MEDICAL SERVICE OFFICERS

HONOURS

Officer of the Order of St John of Jerusalem

Commander A C Mackay

PROMOTIONS

To Lieutenant
M Chandler

To Acting Sub-Lieutenant
T C Pitts

QUEEN ALEXANDRA'S ROYAL NAVAL NURSING ASSOCIATION

PROMOTIONS

To Matron-in Chief on March 24 1980
Miss M E Collins RRC

To Principal Matron on September 17 1979, and Deputy to Matron in Chief
Miss J Robertson RRC

To Matron
Superintending Sisters Miss E Merkiejohn ARRC
Miss E. V Wade Miss M E Williams ARRC

To Superintending Sister
Miss P E. Wagstaff

To Senior Nursing Sister
Miss G M Mason Walshew Miss A V Webber

To Nursing Sister
Miss A F Laing Miss J M Morris Miss J L. Wood

To Clerical and Quarters Officer
Miss F White

APPOINTMENT

To Matron, Royal Naval Hospital, Haslar, on September 24 1979
Miss E. M Northway ARRC

NEW ENTRIES

Nursing Sisters

Miss A. Heneyball Miss V. A. Masters
Miss A. H. Manierville Miss E. L. McA. Robertson

RETIREMENTS

Superintending Sister Miss K. E. A. Funnell

ROYAL NAVAL RESERVE

PROMOTIONS

To Surgeon Lieutenant Commander

J. Maitland S. C. Stanley

To Surgeon Lieutenant Commander (D)

A. N. James

NEW ENTRIES

Surgeon Lieutenant Commanders A. J. Bray
D. R. Meegan

Surgeon Commodore S. D. Scott-Jones and W. D. M[illegible] receive the prize [illegible] RAMC. Millbank of the Parkes Memorial [illegible] Submarines Rest[illegible] The treatment of chronic nasal sinusitis [illegible] page 123) They are the first naval medical officers to receive this prize which has been awarded since 1879 in memory of Dr Edmund Alexander Parkes MD FRCP FRS an Assistant Surgeon in the 84th Regiment who became in 1850 the first Professor of Hygiene in the Army Medical Service

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